

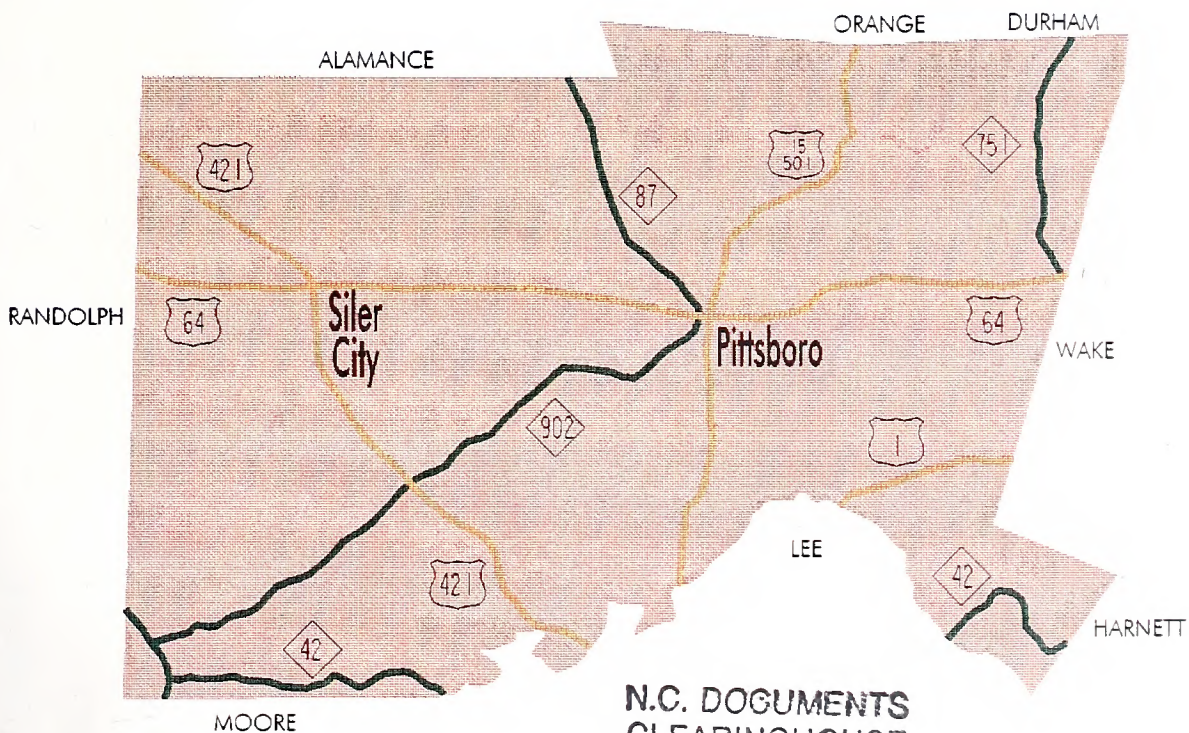
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*North Carolina Department of Transportation
Division of Highways
Statewide Planning Branch*

CHATHAM COUNTY THOROUGHFARE PLAN




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Acknowledgements

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Executive Summary

In August 1995, Chatham County requested thoroughfare planning assistance from the North Carolina Department of Transportation Statewide Planning Branch in updating the 1983 Chatham County Thoroughfare Plan. The resulting 1996 Recommended Chatham County Thoroughfare Plan is shown in **Figure 1** on page 3. This Plan was developed using the thoroughfare planning principles described in **Appendix A** of this report.

The 1996 Recommended Chatham County Thoroughfare Plan is a map that will serve as a mutually adopted official guide used in providing a well coordinated, efficient, and economical major street system for the area. The Thoroughfare Plan provides local staff and officials information about future street improvements that can be incorporated in planning and policy decisions.

The study is based on an analysis of historic traffic trends, along with other related issues, such as population, economy, and land uses. The projected future traffic patterns were compared to the existing street system, along with the committed Transportation Improvement Program (TIP) projects, to determine the transportation deficiencies for the design year 2020. The results from this analysis were used to develop the 1996 Recommended Chatham County Thoroughfare Plan.

This report documents the development and findings of the study. It includes recommendations for thoroughfare cross-sections, cost estimates and benefits evaluations for these recommended improvements, and recommendations for plan implementation.

There was a committee consisting of local staff, NCDOT personnel, and various citizens that provided assistance throughout the development of the Thoroughfare Plan. There was also a public meeting hosted by the Chatham County Planning Board to present the recommended Plan to the public before going to the policy boards.

The Thoroughfare Plan should meet the future travel needs of the public. Therefore, it is important to have public support and input throughout the development of a Thoroughfare Plan. There were two public meetings held in Chatham County to allow for public involvement. After these public meetings, the Planning Board chose to recommend a Thoroughfare Plan that did not include the proposed Jack Bennett Road Connector. Based on the technical information used in developing this Plan, there are potential effects from not planning for this facility. Those are outlined in detail in **Appendix C** and a summary of the public meetings are presented in **Appendix D**.

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I. INTRODUCTION

A well planned transportation system plays an important role in our economy and way of life. It provides a means of transporting people and goods from one place to another quickly and conveniently. A good highway system must not only meet existing travel demands, but must also keep pace with the development of the area.

Recognizing the importance of planning for future transportation needs, Chatham County requested thoroughfare planning assistance from the North Carolina Department of Transportation (NCDOT) Statewide Planning Branch. This report is a documentation of the development of the 1996 Recommended Chatham County Thoroughfare Plan, shown in **Figure 1**. This study was initiated in August, 1995, to update the 1983 Chatham County Thoroughfare Plan. This Plan also shows the planning areas for towns that fall within the county limits and have adopted Thoroughfare Plans; those are Siler City and Pittsboro. For information on roads within those planning areas, as well as the 1983 Thoroughfare Plan, refer to the maps presented in **Appendix A**.

The objective of thoroughfare planning is to enable the transportation system to progressively develop to meet the needs of the county. The resulting Thoroughfare Plan serves as a mutually adopted official guide in providing a well coordinated, efficient, and economical major street system for the Chatham County area. It will be used as a tool for local officials to ensure transportation facilities in the county are planned for in a manner consistent with the needs of the public. This will lessen the disruption from roadway improvements to local residents and businesses, as well as the environment.

The purpose of this study was to examine present and future transportation needs of Chatham County and develop an updated Thoroughfare Plan. This report recommends those improvements determined necessary for efficient traffic circulation within the 1995 - 2020 planning period. The recommended cross-sections for these improvements are based on existing conditions and projected traffic volumes and are outlined in **Appendix B**. These recommendations also incorporate bicycle improvements for any facility designated on the Chatham County Bike Route Map, presented in **Figure 2**.

The development of the Chatham County Thoroughfare Plan was based on anticipated growth, as coordinated with the County. Actual growth patterns may differ from those projected, therefore, it may become necessary to accelerate or retard the development of thoroughfares or make revisions to the Plan. It is desirable to review the Plan approximately every ten years and adjust the thoroughfare system to reflect the actual growth of the area.



BYNUM LEGEND

Bicycle Routes

- Route #3
- Route #4
- Route #5
- Connector route
- Bicycle Highway #1 & #2
- Busy road

Map Symbols

- State Roads - paved
- State Roads - unpaved
- N.C. highways
- U.S. highways
- Railroads
- Streams/Lakes/Rivers
- Towns
- Points of Interest
- Country Stores
- Picnic Areas
- Campgrounds
- Craft studio
- Airport

HOW TO USE THE MAP

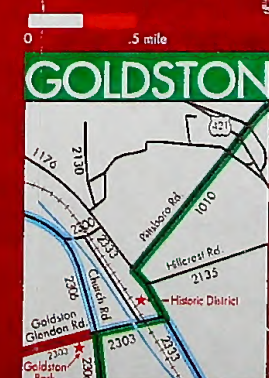
The map provides everything needed to plan your bicycle trip through Chatham County. The three bicycle routes and connectors are highlighted in blue, red, green and brown. The legend to the right indicates the symbols for points of interest, craft studios, country stores, campgrounds and picnic areas. Busier portions of the routes where special care should be taken are indicated with cross-hatching. Enlargements are provided for navigation through Siler City, Pittsboro, Bynum, Goldston and Gulf.

The three bicycle routes are marked with green and white numbered bike route signs. "Share the Road" signs have been placed in areas where motor vehicle traffic is heavy (both signs shown below). These warning signs are meant to alert motorists to the presence of bicyclists and to remind drivers that bicyclists have a legal right to ride on the road. Cyclists should remember to be courteous to drivers and not block the road by riding side-by-side along these routes.



Jordan Lake Recreational Areas and Facilities

	Boat ramp	Camping group	Camping tent	Fishing	Hike	Swimming	Swimming	Swimming
Crosswinds Campground								
Crosswinds Marina								
Ebenezer								
New Hope Overlook								
Parkers Creek								
Poplar Point								
Savannah								
Vista Point								



Mileage Between Points

Distances shown are measured along highlighted routes and may not be the shortest or most direct routes between points.

	Bennett	Bonlee	Bynum	Carbonton	Crosswinds	Goldston	Gulf	Haywood	Pittsboro	Poplar Point	Siler City
Bennett											
Bonlee	20										
Bynum	42	25									
Carbonton	23	14	31								
Crosswinds	49	44	18	38							
Goldston	17	8	25	6	33						
Gulf	21	12	29	10	29	4					
Haywood	39	30	21	28	11	22	18				
Pittsboro	34	17	8	23	24	17	21	13			
Poplar Point	48	40	19	37	1	32	28	10	23		
Siler City	28	8	30	22	43	15	30	35	25	44	
Vista Point	50	33	8	39	26	33	37	29	16	27	38

* indicates travel along one or more seasonal connector routes which may carry higher volumes of traffic during the summer months and on spring and fall weekends.

II. CHATHAM COUNTY THOROUGHFARE PLAN

A thoroughfare plan study identifies existing and future deficiencies in the transportation system, as well as uncovers the need for new facilities. The thoroughfare plan also provides a representation of the existing highway system by functional use. This use is based on the Federal Functional Classification System. This system groups street and highways into classes according to the type of service those facilities provide. The most recent update (January 4, 1993) of this federal system was a result of Section 1006 of the Intermodal Surface Transportation Efficiency Act (ISTEA) which specified that each State reclassify roads. A full description of these classifications is presented in **Appendix A.**

The 1996 Chatham County Thoroughfare Plan was developed in coordination with the Chatham County Thoroughfare Planning Committee, which was established to update the 1983 Chatham County Thoroughfare Plan. This update was based on the Federal Functional Classification System; Chatham County Bike Route Map; population, economic, land use and traffic growth trends for the area; characteristics of the existing street system; and environmental data. It is the goal of this study that the recommended plan set forth a transportation system that will serve the anticipated traffic and land development needs for Chatham County. The following chapter is a summary of the 1996 thoroughfare plan recommendations.

Principal Arterials

These roads primarily serve statewide or interstate travel. Generally, interstates constitute a significant portion of these roads, however, there are no interstates in Chatham County.

- **US 1 (TIP Project #R-2500)** - This facility goes from Lee County to Wake County. The project calls for widening the existing road to a four-lane divided facility. Traffic volumes are projected to be 17,000 vpd by the year 2020.
- **US 15-501 North (TIP Project #R-942)** - This facility goes from the Pittsboro Planning Area north to the Orange County line. The project calls for widening the existing facility to a four-lane divided cross section from the proposed US 64 Bypass to Chapel Hill. A high percentage of commuter traffic travels along this facility to Orange and Durham Counties. Traffic volumes are projected to reach 32,500 vpd by the year 2020.

- **US 64 (TIP Project #R2217, R-2218, R-2219, R-2318)** - This facility goes from Randolph County east to Wake County. These projects call for widening the existing facility to a four-lane divided cross section. Traffic projections for this facility range from 15,000 - 22,000 vpd by the design year.
- **US 64 Bypass (TIP Project # R-2219)** - This is a proposed facility on new location around the Town of Pittsboro. Traffic projections for this facility are 15,000 vpd by the design year.
- **US 421 (TIP Project #R-68, R-2610)** - This facility goes from Lee County to Randolph County. These projects call for widening the existing facility to a four-lane divided cross section. Traffic projections range from 15,000 -18,000 vpd by the year 2020.

Minor Arterials

These roads primarily serve intercounty travel. Along with principal arterials, these roads link cities, larger towns, and other major attractors of traffic.

- **US 15-501 South** - This facility goes from Lee County north to the Pittsboro Planning Area. This section will be nearing capacity by the design year and is recommended to be widened to a four-lane divided cross section with paved shoulders to accommodate for bicycles from SR 1955 to SR 2217. This facility carries commuter traffic from Lee to Chatham County, as well as through Chatham County to Durham and Orange Counties. Traffic volumes are projected to be 15,000 vpd.
- **NC 87** - This is a two-lane facility that goes from the Pittsboro Planning Area into Alamance County. It provides access to the Towns of Pittsboro and Graham. There are no recommended improvements for this facility.
- **NC 751** - This facility goes from Durham County to US 64. It will be nearing capacity by the design year and is recommended to be widened to a three-lane cross section on a five-lane right-of-way with wider outside lanes to accommodate for bicycles from Durham County to SR 1740. This area has shown high traffic growth historically. There are also development influences from Durham and Wake Counties. Traffic volumes are projected to be 9,700 vpd.

- **Old 421** - This facility goes from Siler City to Randolph County. It used to serve as US 421 and now runs parallel to that highway. It primarily serves local traffic with volumes projected to be 6,000 vpd by the year 2020.

Collector Roads

These roads generally serve intracounty travel. These are further divided into major and minor collectors. Major collectors provide service to larger towns not served by principal or minor arterials. Minor collectors collect traffic from local roads. Also, from a safety aspect, any of the following two-lane roads having less than a 20-foot pavement width should be considered for widening to a 24-foot pavement width.

Major Collectors

- **Beaver Creek Road (SR 1008)** - This facility goes from US 64 to Pea Ridge Road (SR 1972). There are no recommended improvements for the design year.
- **Corinth Road (SR 1916)** - This is a two-lane facility that primarily serves a large percentage of industrial traffic in the southeastern portion of Chatham County. It provides a connection from Old US 1 to NC 42. There are no recommended improvements for this facility.
- **Farrington Road (SR 1008)** - The section from the proposed connector to Old Farrington Road (SR 1726) is recommended to be widened to a five-lane cross section with wider outside lanes to accommodate for bicycles. This projected traffic along this facility is a result of both the historic growth in this area, as well as the additional increase in traffic from the proposed connector.
- **Hamlet Chapel Road (SR 1525)** - The section from Mann's Chapel Road (SR 1532) to US 15-501 is recommended to be widened to a three-lane cross section with wider outside lanes to accommodate for bicycles from Mann's Chapel Road to Moore Mountain Road. Chatham County has a water line along this road and residential growth is expected.
- **Jack Bennett Road (SR 1717)** - The section from US 15-501 to the proposed connector is recommended to be widened to a three-lane facility on five-lane right-of-way with wider outside lanes to accommodate for bicycles. This facility is recommended to be widened

to provide alternate corridors for commuter traffic traveling northeast of the County.

- **Mann's Chapel Road (SR 1532)** - The section from US 15-501 to Poythress Road (SR 1534) will be over capacity by the design year. It is recommended to widen this to a five-lane cross section. This area of Chatham County is experiencing high residential growth with traffic volumes projected to be 13,800 vpd. In addition, there are plans to expand water to this area which will increase development potential and support the need for the five-lane cross section. A combined elementary and middle school is under construction at the intersection of SR 1532 and SR 1525.
 - The section from Poythress Road (SR 1534) to Hamlet Chapel Road (SR 1525) is recommended to be widened to a three-lane cross section with wider outside lanes to accommodate for bicycles. There is also potential for residential development.
- **Moncure-Pittsboro Road (SR 1012)** - This is a two-lane facility that goes from Pittsboro to Old US 1 in Moncure. There are no recommended improvements for this facility by the design year.
- **NC 22** - This is a two-lane facility that goes from Moore County and ties into NC 42. There are no recommended improvements for this facility by the design year.
- **NC 22/42** - This is a two-lane facility that goes from NC 42 to Randolph County. There are no recommended improvements for this facility by the design year.
- **NC 42** - This is a two-lane facility that goes from Wake County to Lee County, then back into Chatham where it ties into NC 22. This facility primarily serves traffic in the southern portion of the county. There are no recommended improvements for this facility.
- **NC 902** - This is a two-lane facility that serves traffic from the Pittsboro area to US 421. There are no recommended improvements for this facility.
- **Old Farrington Road (SR 1726)** - The section from Farrington Road (SR 1008) to Durham County is recommended to be widened to a five-lane cross section. This will provide a route for Chatham County residents traveling to Durham and Wake counties.

- **Old US 1 (SR 1011)** - This is a two-lane facility that goes from US 1 to Lee County and is parallel to US 1. This facility serves both local and industrial traffic. There are no recommended improvements for this facility.
- **Proposed Jack Bennett Road Connector** - This facility will go from existing Jack Bennett Road to Farrington Road (SR 1008). It is recommended that this facility be two lanes on a four-lane divided right-of-way. This will allow for an additional two lanes to be constructed at a later date. This facility is needed to provide a safer, more efficient route for Chatham County residents traveling northeast of the County. It also provides an alternate route for traffic traveling adjacent to the elementary school. Refer to **Appendix C** for a more detailed analysis of this facility.
- **Pea Ridge Road (SR 1972)** - This is a two-lane facility that ties into SR 1008 and ends at Old US 1 (SR 1011). This primarily serves some industrial traffic, as well as some recreational traffic. No recommended improvements are necessary for this facility.
- **Siler City-Glendon Road (SR 1006)** - This is a two-lane facility that serves traffic traveling from Moore County to Siler City. There are no recommended improvements for this road.

Minor Collectors

- **O'Kelley Church Road (SR 1731)** - This is a two-lane facility that goes from NC 751 to Wake County. This facility is recommended to be widened to a three-lane cross section to accommodate increases in traffic resulting from planned residential and commercial development in the area.

The following roads are also classified as minor collectors. There are no recommended improvements necessary for these facilities to accommodate future traffic. However, from a safety aspect, any of the following two-lane roads having less than a 20-foot pavement width should be considered for widening to a 24-foot pavement width.

- **Alex Cockman Road (SR 2163)**
- **Blood Run Road (SR 1102)**
- **Bonlee-Bennett Road (SR 1005)**
- **Chatham Street (SR 1151)**
- **Chicken Bridge Road (SR 1545)**

- Coward Road (SR 1104)
- Crawford Dairy Road (SR 1539)
- Foust Road (SR 1300)
- Green Level Road (SR 1742)
- Goldston-Pittsboro Road (SR 1010)
- Goldston-Carbonton Road (SR 2306)
- Hamlet Chapel Road (SR 1525)
- Howards Mill Road (SR 1002)
- Ike Brooks Road (SR 2120)
- Jones Ferry Road (SR 1539 & SR 1540)
- Mann Road (SR 1546)
- Martha's Chapel Road (SR 1752)
- NC 902
- North Pea Ridge Road (SR 1700)
- Old US 1 (SR 1011)
- Old US 421 (SR 1176)
- Rives Chapel Road (SR 2170)
- Silk Hope Road (SR 1004 & SR 1346)
- Snow Camp Road (SR 1004)
- Washington Street (SR 1163)

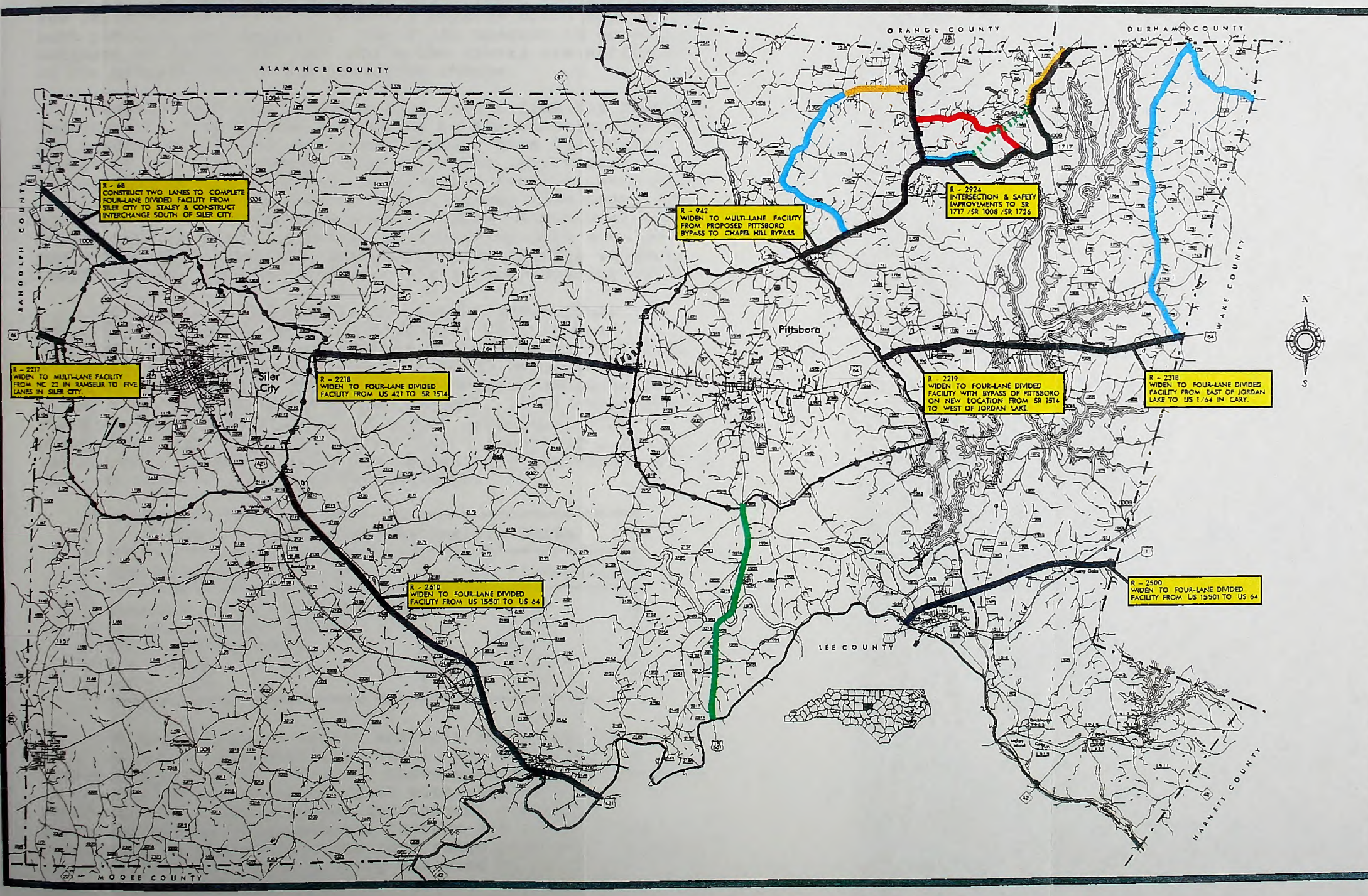
Local Roads

Local roads are all roads that are not classified as principal arterials, minor arterials, or collector roads. These are often residential, industrial, or commercial streets.

- **Lystra Road (SR 1721)** - The section from US 15-501 to Jack Bennett Road (SR 1717) is recommended to be widened to two 12-foot lanes. This will provide for safer travel to the elementary school, as well as to the proposed connector.

Recommended Improvements, User Benefits, and Cost Estimates

The recommended improvements for the Chatham County Thoroughfare Plan cannot be undertaken all at once, nor should they be. These are presented in **Figure 3**, along with all currently funded TIP projects. The need for these recommended projects is based on traffic projections for the design year 2020. Therefore, projects must be prioritized in order for realistic scheduling to be possible. In an effort to provide a common denominator to compare various improvement projects in the Chatham County Thoroughfare Plan, an assessment was made of benefits expected from implementing these projects. These benefits and associated project costs can then be used, at the local level, as a guide in prioritizing project requests.



RECOMMENDED IMPROVEMENTS & TIP PROJECTS

LEGEND

NUMBER OF 12' LANES	EXISTING	PROPOSED
2		
3		
4		
5		
TIP PROJECTS		
TIP NUMBERS & DESCRIPTION		
PLANNING AREA BOUNDARIES		



FIGURE 3
CHATHAM COUNTY
NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
STATEWIDE PLANNING BRANCH
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION

SCALE
0 1 2 3 4 MILES
0 1 2 3 4 KILOMETERS

DATE MAP DATE
MARCH, 1996

USING ROAD CENSUS BASED ON NORTH CAROLINA PLANNING COORDINATE SYSTEM
BY TYPICAL PROJECT

Three principal measures were used to estimate the benefits derived from each project: road user cost savings; potential for increased economic development resulting from the improvement; and environmental impacts which may result, both positive and negative. The first measure is an actual estimate of dollar savings, while the others are estimates of the probability of the resulting change.

Reduced road user costs should result from any roadway improvement, from a simple widening to the construction of a new roadway to relieve congested areas. This is a direct result of the time savings related to the improvement. Comparisons of the existing and proposed facility were made in terms of vehicle operating costs, travel time cost, and accident costs. These user benefits were computed as total dollar savings over the design period using data such as project length, base year and design year traffic volumes, traffic speed, type of facility, and volume/capacity ratio.

The impact of a project on economic development potential is denoted as the probability that it will stimulate the economic development of an area by providing access to land with development potential and reducing transportation costs. This was a subjective estimate based on the knowledge of the proposed project, local development characteristics, and land development potential. The probability was rated on a scale from 0 (none) to 1.00 (excellent). **Table 1** shows the probability estimation guide that was used for this benefit analysis.

Table 1 - Probability Estimation Guide	
Subjective Evaluation	Impact Probability
Excellent - very substantial	1.00
Very good - substantial	0.75
Good - considerable	0.50
Fair - some	0.25
Poor - none	0.00

The environmental impact analysis considers the effect of a project on the physical, social and cultural, and economic environment. Many of these have been accounted for in the evaluation of the project with respect to user benefits, cost, and economic development potential. There are twelve environmental factors not individually considered in evaluations for long range planning. However, these factors are cummulatively analyzed by using the summation of both positive and negative impact probabilities with respect to the relative environmental impact of a project. These factors are the environmental impacts of a project on: (1) air quality; (2) water resources; (3) soils

and geology; (4) wildlife; (5) vegetation; (6) housing and neighborhoods; (7) noise; (8) educational facilities; (9) churches; (10) parks and recreational facilities; (11) historic sites; and (12) public health and safety. These factors are studied in more detail in the environmental documentation phase, which occurs after a project becomes funded. **Table 2** shows a listing of all of the environmental considerations that were cummulatively analyzed based on the impacts of the recommended improvements. Some of these environmental aspects are further discussed in **Chapter VI** of this report.

Table 2 - Environmental Considerations		
Physical Soils and Geology	Social/Cultural Environment	Economic Environment
Air Quality	Housing and Neighborhoods	Businesses
Water Resources	Noise	Employment
Soils and Geology	Educational Facilities	Economic Development
Wildlife	Churches	Public Utilities
Vegetation	Parks and Recreational Facilities	Transportation Costs
	Historic Sites and Landmarks	Capital Costs
	Public Health and Safety	Operation and Maintenance Costs
	National Defense	
	Aesthetics	

Offsetting the benefits that would be derived from any project is the cost of its construction. A new facility, despite its projected benefits, might prove to be unjustified due to the excessive costs involved in construction. The highway costs estimated in this report were based on the average statewide construction costs for similar project types. An estimate of anticipated right-of-way costs was also included. **Table 3** shows the results from the evaluation of the recommended improvements with respect to user benefits, estimated costs, probability of economic development, and environmental impact.

**Table 3 - Chatham County Thoroughfare Plan
Cost Estimates - Benefits - and Probable Impacts**

Description	Const. Cost \$1000	ROW Cost \$1000	Total Cost \$1000	User Benefits \$1000	Economic Development	Environmental Impacts	
						Positive	Negative
) Widen US 15/501 S	10,500		10,500	35,460	0.25	0.70	0.00
) Widen Mann's Chapel Road	5,200	100	5,300	22,860	0.75	0.50	0.10
) Widen Hamlet Chapel Road	2,065		2,065	4,170	0.50	0.50	0.30
) Widen Jack Bennett Road	825		825	9,420	0.50	0.40	0.50
) Widen Farrington Road	425	100	525	2,330	0.75	0.50	0.40
) Widen Old Farrington Road	1,200	100	1,300	6,580	0.50	0.50	0.40
) Widen NC 751	5,169	250	5,419	1,890	0.75	0.30	0.50
) Widen O'Kelley Chapel Road	1,350		1,350	260	0.75	0.60	0.00
) Proposed Northeast Connector	2,208	250	2,458	72,350	0.75	0.60	0.50
) Widen Lystra Road	*	*	*	*	*	*	*

This project was recommended for safety. Therefore, cost and benefits were not estimated.

III. IMPLEMENTATION

Implementation is one of the most important aspects of the transportation plan. Unless implementation is an integral part of the process, the effort associated with developing the plan and the integrity of the plan is lost. There are several tools available to assist the County in implementing recommended improvements associated with the Thoroughfare Plan. The following are steps the County can follow to implement a Plan: mutual adoption of the Thoroughfare Plan; corridor protection; and funding sources.

State and County Adoption of the Thoroughfare Plan

The first step in implementing the Thoroughfare Plan is mutual adoption by both the North Carolina Department of Transportation and Chatham County. The mutually adopted Plan may then serve as a guide for the County and the Department of Transportation in the development of the road and highway system for the County. The adoption of the Plan by the County also enables standard road regulations and land use controls to be used effectively in the implementation of the Plan.

Corridor Preservation

The next step in implementing the Thoroughfare Plan is corridor preservation. This is a critical step in the implementation process because it not only minimizes the cost of the roadway improvement but it also minimizes the disruption to local residents, business, and the environment. Through regulatory measures, such as subdivision, land use, and development regulations, the County can protect the necessary right-of-way for identified future roadway improvements.

Subdivision Regulations require that every subdivider submit to the County a plot of his or her proposed subdivision. Certain standards must be met by the developer before construction is allowed. Through this process, it is possible to reserve or protect the necessary right-of-way for construction of proposed streets and widening of existing streets and to require street construction in accordance with the plan.

This tool would be applicable to the widening of Mann's Chapel Road (SR 1532). Protecting the necessary right-of-way width would reduce the disruption to new homes and businesses due to the future widening of this road.

Land Use Regulations/Zoning is an important tool since they regulate future land development and minimize undesirable development along roads and highways. The land use regulatory system can improve roadway safety by requiring sufficient setbacks to provide for adequate sight distances and by requiring off-street parking.

This tool would be applicable to all facilities with recommended widenings. This would ensure that these facilities would maintain their intended capacities.

Development Regulations/Site Reviews are another tool since they allow for a review process prior to development. For example, driveway access to a State-maintained street or highway is reviewed by the District Engineer's office and by the Traffic Engineering Branch of the North Carolina Department of Transportation prior to access being permitted. Any development expected to generate large volumes of traffic (eg. shopping centers, fast food restaurants, large industries, etc.) may be comprehensively studied by staff from the Traffic Engineering, Statewide Planning, and Roadway Design Branches of NCDOT. If done at an early stage, it is often possible to significantly improve the development's accessibility at a minimal expense. Since the local government is the first point of contact for developers, it is important that they advise the developers of this review requirement and facilitate this review process.

Use of developmental reviews could help control increasing traffic and congestion along US 15-501. Through development reviews, developers could be requested to take certain measures to maintain the intended capacity of roads.

Funding Sources

The final step in the implementation process is funding of the various projects defined from developing the Thoroughfare Plan. There are several funding options that the County can pursue for construction of recommended improvements. The Transportation Improvement Program (TIP), small urban funds, enhancement funds, and individual access funds are examples of these.

Transportation Improvement Program (TIP) is a document which lists all major construction projects the North Carolina Department of Transportation plans for the next seven years. Every year when the TIP is updated, completed projects are removed, programed projects are advanced, and new projects are added.

During annual TIP public hearings, local governments and interested citizens request projects to be included in the TIP. The Board of Transportation member reviews all projects in their particular area of responsibility. Based on technical feasibility, need, and available funding, the Board member decides which projects to include in the TIP. In addition to highway construction and widening, TIP funds are also available for other projects such as: bridge replacement, highway safety, public transit, railroad crossings, and bicycle facilities.

Small Urban Funds are annual discretionary funds for each of the 14 divisions. Each division receives \$1 million per year for Board members to fund projects at their discretion. These funds are for the construction of projects occurring within city limits or within one mile of those municipal boundaries. Requests for Small Urban Fund assistance should be directed to the appropriate Board of Transportation Member and Division Engineer.

Enhancement Funds are a result of the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, that provided federal funds used for enhancing transportation systems. These funds can be used for projects such as bicycle and pedestrian facilities, scenic beautification, and historic preservation. For additional information on enhancement funds, contact the respective Board of Transportation Member.

Industrial Access Funds are state funds that are available for the construction of access roads from state maintained roads to large industries. For information on these funds, contact the Secondary Roads office of NCDOT.

IV. TRENDS & RELATED ISSUES

In order to develop a thoroughfare plan, future travel patterns must be determined. Land use, economy, and population are examples of trends that effect travel patterns. Therefore, these trends and other related issues play a vital role in determining the transportation needs of a county. Examining these factors can help explain historic traffic trends and lay the groundwork for predicting future travel patterns.

Land Use

The generation and attraction of traffic on a particular road is related to the land uses adjacent to that road. The type and intensity of the land use has an effect on the amount of traffic on a road, as well. For example, a shopping center generates larger traffic volumes than a residential area. Therefore, not only is it important to differentiate between land uses, but it is also important to incorporate any changes in land uses into long range transportation planning. For information referring to Chatham County zoning, contact the Chatham County Planning Department.

There are several variables used to forecast future land development. Some of them are: anticipated population changes; historical trends in different development types; availability and effectiveness of legal controls, regulations, and ordinances; availability of utility and transportation facilities; and major topographic and environmental features.

Economic Trends

The economic base of an area is an important factor to consider in estimating future traffic growth. The economic base determines the employment type and size. This in turn influences the population of an area.

Employment figures for Chatham County show there were 15,911 employees in 1990. Using this information, the employment to population ratio was calculated to be 0.39. This ratio is slightly low due to the large number of people that commute (9,653) to other counties to work such as Orange, Durham, Wake, Randolph, Lee, Guilford, Alamance, and Moore. This information is presented in **Table 4**. Although the employment to population ratio is low, the number of employees in Chatham County has continued to steadily increase at a rate of 1.6% annually over the past 10 years.

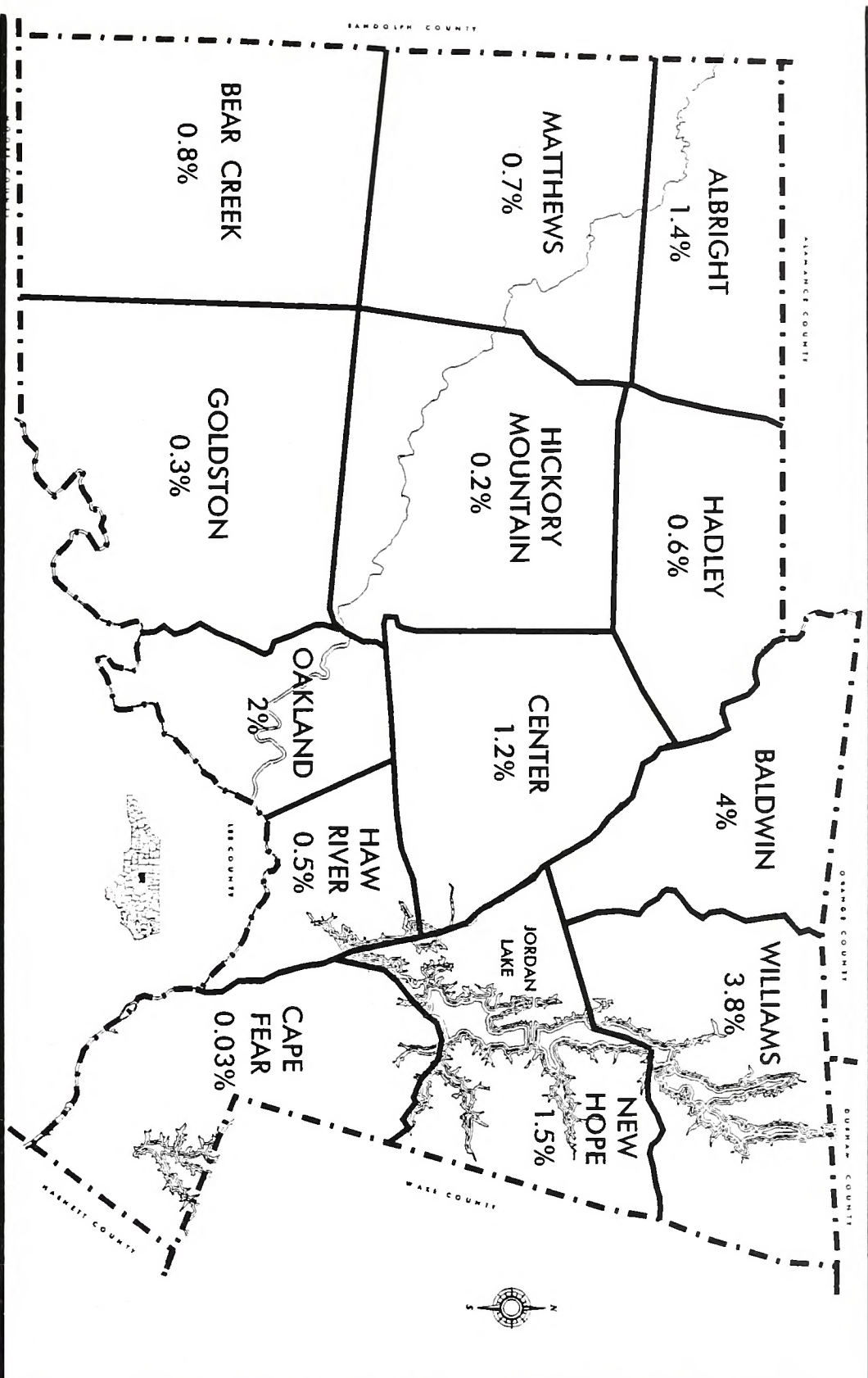
TABLE 4 - Out Commuters
(Commutes of 100 or more people)

Location of Residence	Location of Work	Number of People
Chatham County	Orange County	3671
Chatham County	Durham County	1727
Chatham County	Wake County	1485
Chatham County	Randolph County	959
Chatham County	Lee County	895
Chatham County	Guilford County	339
Chatham County	Alamance County	186
Chatham County	Moore County	130
Total Number of People Commuting from Chatham County = 9,653		
Total Number of People Commuting to Chatham County = 4,114		
Total Number of People Working in Chatham County = 15,911		
Total Number of Employed Residents in Chatham County = 20,658		

Population

The volume of traffic on a road is related to the size and distribution of the population it serves. Therefore, analysis of population data gives useful information in the development of a Thoroughfare Plan. By studying past population counts, future projections can be estimated.

Table 5, on the next page, shows the population trends for the State, the County, the townships in Chatham County, and the cities and towns in Chatham County. As indicated by the township growth rates shown in **Figure 4**, the northeastern portion of the County is experiencing the greatest increase in population. The County as a whole is expected to continue to grow at a slightly faster rate than the State through the year 2020 as shown by the growth trends in **Table 5**.



TOWNSHIP POPULATION TRENDS (1960-1990)

% OF
GROWTH
PER YEAR

FIGURE 4
CHATHAM COUNTY
NORTH CAROLINA

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
STATISTICAL SERVICE DIVISION
U.S. DEPARTMENT OF TRANSPORTATION
MARCH 1995

Table 5. Chatham County Population Trends and Projections*

Description	1960	1970	1980	1990	Growth Trends	2000	2010	2020	Growth Trends
North Carolina	4,556,155	5,084,411	5,880,095	6,632,448	----	7,555,475	8,179,652	8,784,259	1.1%
Chatham County	26,785	29,554	33,415	38,759	----	45,250	49,105	52,656	1.2%
Townships									
Albright	1,403	1,664	1,921	2,149	1.4%	----	----	----	----
Baldwin	1,375	1,746	3,019	4,518	4.6%	----	----	----	----
Bear Creek	2,640	2,686	3,078	3,221	0.8%	----	----	----	----
Cape Fear	1,068	935	1,047	1,048	-0.3%	----	----	----	----
Center	3,328	4,009	4,286	4,854	1.2%	----	----	----	----
Gulf	2,858	2,926	3,235	3,083	0.3%	----	----	----	----
Hadley	895	775	945	1,059	0.6%	----	----	----	----
Haw River	889	946	1,034	1,018	0.5%	----	----	----	----
Hickory Mountain	1,374	1,334	1,344	1,474	0.2%	----	----	----	----
Matthews	7,718	8,838	8,766	9,406	0.6%	----	----	----	----
New Hope	1,167	1,095	1,221	1,732	1.5%	----	----	----	----
Oakland	560	614	800	948	2.0%	----	----	----	----
Williams	1,510	1,989	2,719	4,249	3.5%	----	----	----	----
Cities and Towns									
Goldston	374	364	353	333	-0.4%	----	----	----	----
Pittsboro	1,215	1,447	1,332	1,621	1.0%	----	----	----	----
Siler City	4,455	4,689	4,446	4,808	0.3%	----	----	----	----

* North Carolina Office of State Planning

Vehicle Registration

As the number of vehicles increase, there is a greater strain placed on the existing road network. Additional traffic volumes will increase safety hazards and congestion. To alleviate traffic congestion, steps must be taken towards building new roads and enhancing existing facilities.

Vehicle registration is increasing at a greater rate than population. This increase can best be understood by analyzing the ratio of persons/vehicle over time. This ratio is obtained by dividing the total population of Chatham County by the total number of vehicles registered in the County. The persons/vehicle trend for Chatham County is shown in **Table 6**. The results in this table illustrate the transition from a non-automobile oriented society to one that is heavily dependent on the automobile, which means that over time more vehicles have become available per person. Because of this convenience, potentially more vehicle trips can be made.

TABLE 6 Persons/Vehicle in Chatham County			
Year	Population	Vehicle Registration	Persons/ Vehicle
1970	29,554	14,873	1.98
1980	33,415	23,296	1.43
1990	38,759	31,493	1.23
2020	52,656	45,000	1.17

Since 1970, the number of registered vehicles in Chatham County has increased at a greater rate than the population. This increase can be shown by a graph depicting the change in the persons per vehicle ratio over time. **Figure 5** compares this ratio for North Carolina and Chatham County. The results show that over time more vehicles have become available per person which results in the corresponding number of vehicles being owned increasing at a faster rate than the population. Therefore, traffic and congestion on the road system are potentially increasing, as well.

Population/Vehicle Trends

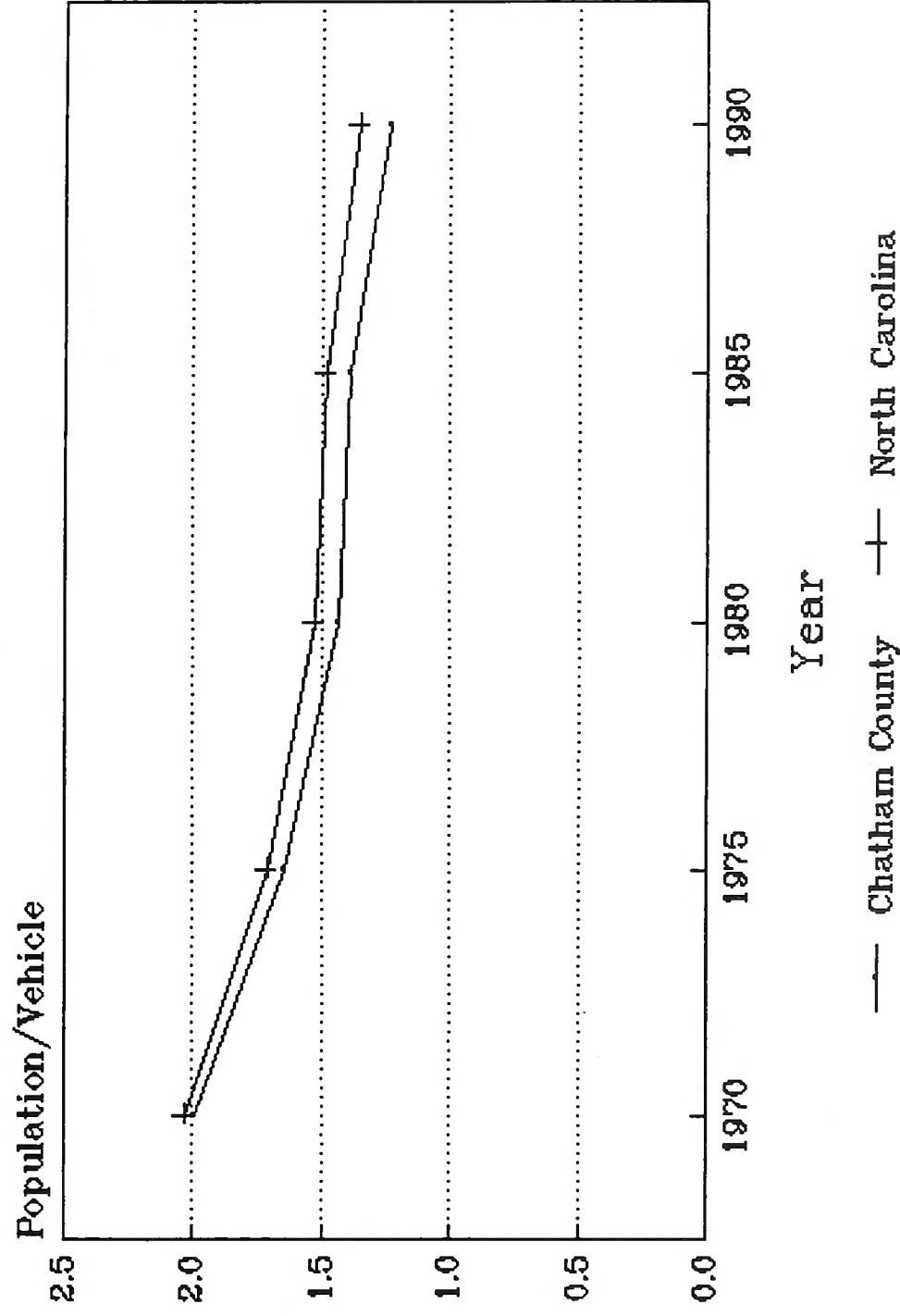


Figure 5

V. TRAVEL DEFICIENCY ANALYSIS OF EXISTING SYSTEM

This chapter presents a travel deficiency analysis of the existing street system. A capacity deficiency analysis for the street system was done for both the base year and design year to determine its ability to handle the area's travel demands. In addition to analyzing these capacity deficiencies, high accident intersections and deficient bridges were also investigated. By analyzing these travel deficiencies, the need for proposed facilities and widening of existing facilities can be determined.

Travel demand for Chatham County was determined in order to project traffic conditions for the design year 2020. Traffic counts in Chatham County were studied from 1985 to 1994 along various facilities. These counts were analyzed to determine the average annual historic traffic growth rates across the county. Historic traffic growth rates were used in addition to land use, population, and economic trends to develop design year traffic projections. Generally, these projections were based on growth rates of 2% to 3% per year in the western portion of the County; the northeastern portion ranged from 3.5% to 4.5% per year; and the southeastern portion was about 3.5% per year.

Capacity Deficiency Analysis

Capacity, as used in this report, refers to the "practical capacity" of a facility, which is the maximum number of vehicles a particular road can handle up to the point where the driver experiences dissatisfaction resulting from congestion and travel time delays. For the capacity deficiency analysis, roads were analyzed based on providing a level of service D (**LOS D**). For more information on the LOS, refer to the Generalized Chapters for the Thoroughfare Plan Reports prepared by the NCDOT Statewide Planning Branch. The recommended improvements and overall design of the Thoroughfare Plan were based on achieving a minimum of LOS D on existing facilities and LOS C on new facilities.

1994 Analysis

The NCDOT conducts annual traffic counts across the state. These counts are reported in the form of Average Daily Traffic (ADT) volumes. The comparison of current ADT volumes with current street capacities is shown in **Figure 6**. This information was used in analyzing the base year capacity deficiencies. This analysis indicated that only one facility in Chatham County was over capacity; US 15/501 from the Pittsboro planning area into Orange County. Current traffic volumes range from 8,900 to 17,700 vpd with

a capacity of 14,000 vpd. This section of US 15/501 is already funded as a TIP project (R-942) to be widened to a multi-lane facility from the proposed US 64 Bypass to the Chapel Hill Bypass.

2020 Analysis

The capacity deficiency analysis for the design year analyzes the "no build" alternative. This analysis looks at the existing street system and any funded TIP projects. If a "no build" alternative is taken for Chatham County, construction of the TIP projects alone will not prevent additional streets from becoming over capacity by the design year 2020. **Figure 7** shows the capacity deficiencies determined for the design year based on the only improvements being construction of TIP projects. As shown in this figure, the "no build" alternative results in additional streets becoming over capacity.

Traffic Accidents

A traffic accident analysis is an important consideration in the development of a Thoroughfare Plan. Traffic accident location and analysis are of assistance in defining problem areas and often pinpoint a deficiency. The cause of traffic accidents can be broken down into three general categories: the physical environment, the driver, and the physical attributes of the vehicle. The physical environment includes things such as road conditions and obstructions, traffic conditions, and the weather. The driver refers to things such as the driver's mental awareness, distractions in the car, ability to handle the car, and reaction time. The physical attributes of the vehicle includes things such as the vehicle's size, responsiveness, and maintenance.

Accident data for January, 1991, to December, 1993, was studied as a part of the development of this report. Intersections having more than 5 accidents were reviewed and presented in **Table 7** along with the predominant type of accident at that location. **Figure 8** shows the locations of these intersections. The intersection with the largest number of accidents was found to be US 15-501 and Mann's Chapel Road (SR 1532). The intersections inside the urban planning areas of Pittsboro and Siler City are not included in this tabulation.

1994 AVERAGE DAILY TRAFFIC AND CAPACITIES

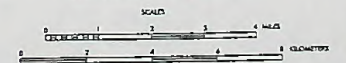
LEGEND

00000 1994 (ADT) AVERAGE DAILY TRAFFIC
00000 CAPACITY OF THE ROAD (LOS D)



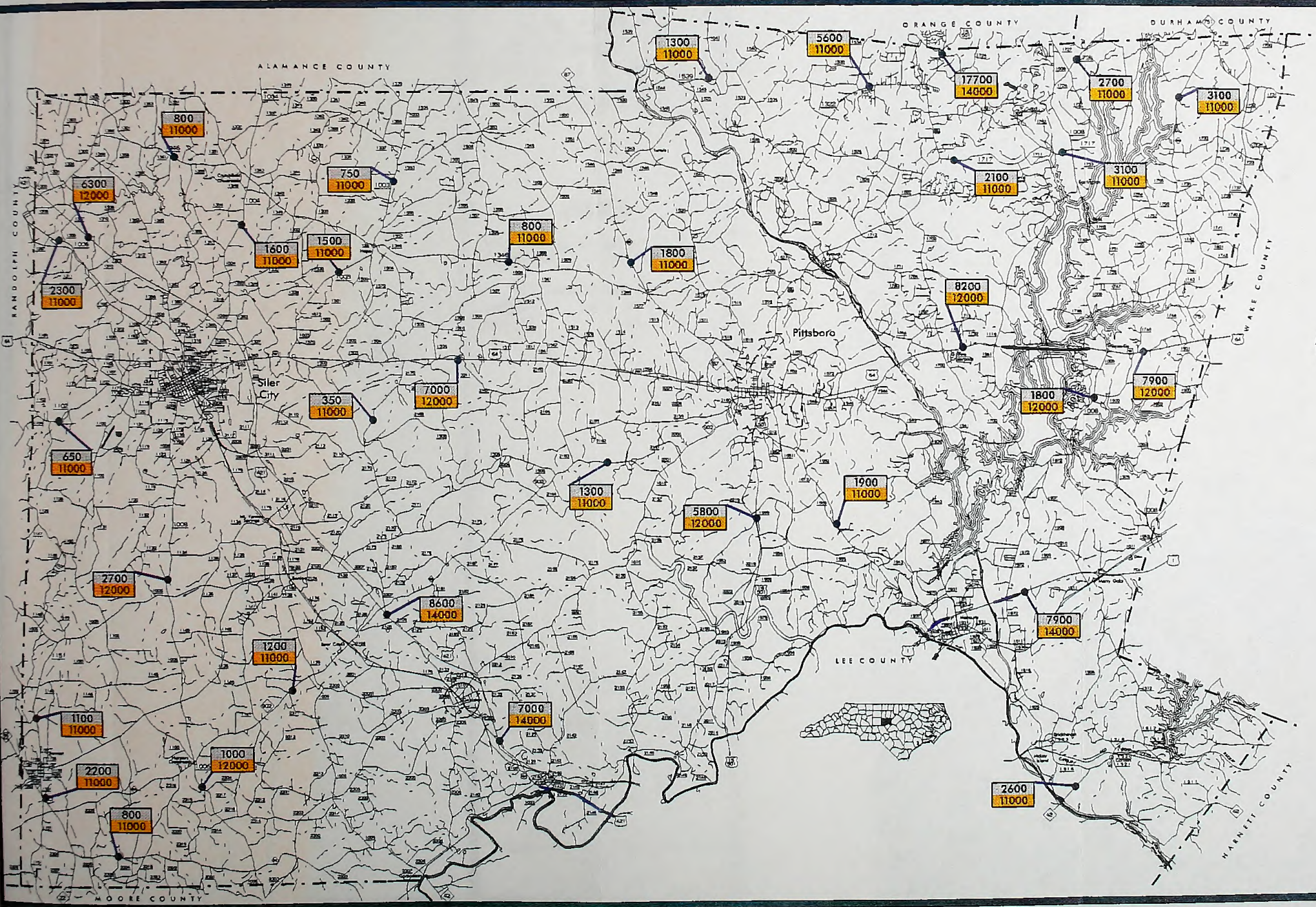
FIGURE 6
CHATHAM COUNTY
NORTH CAROLINA

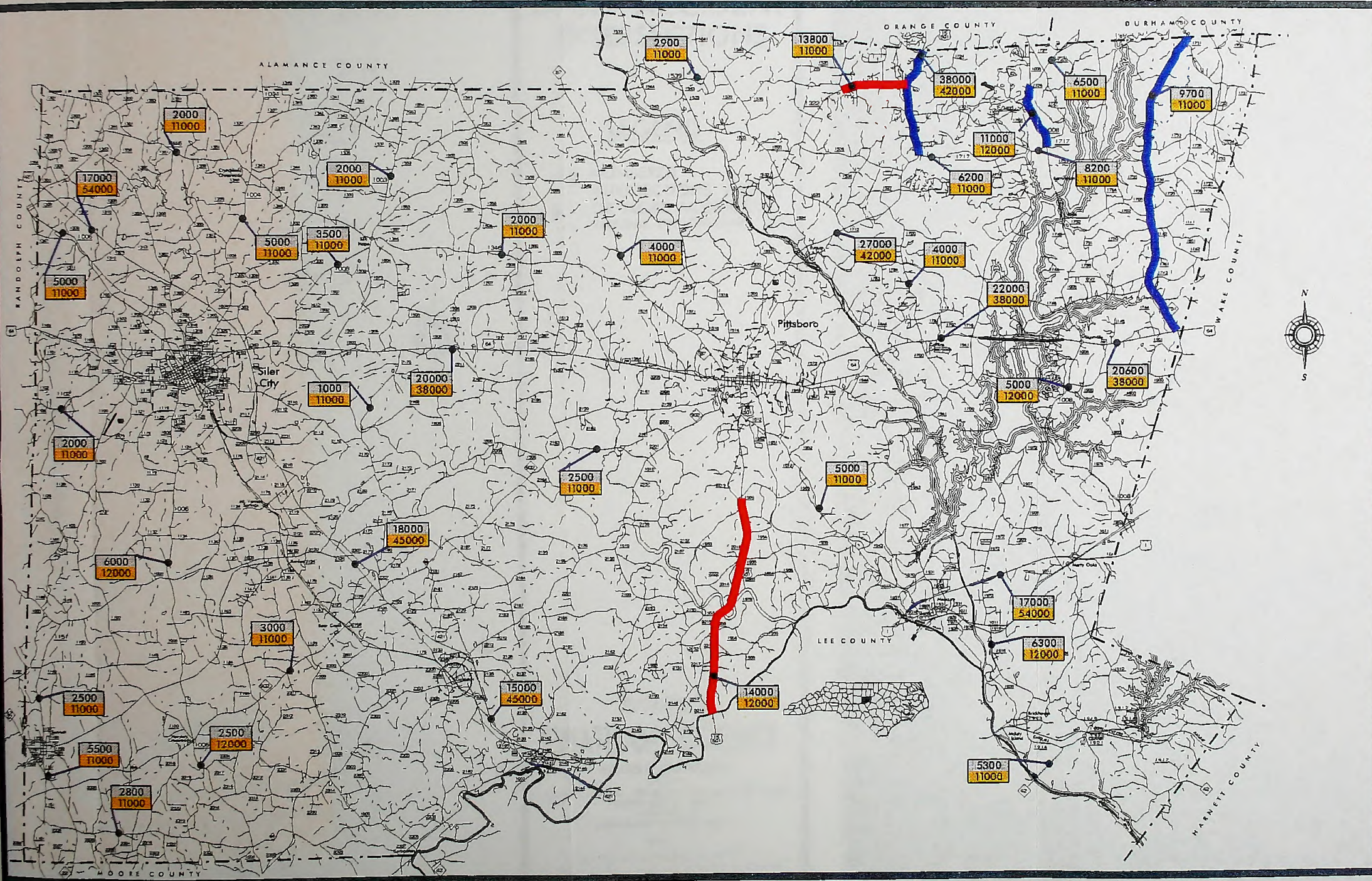
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U.S. DEPARTMENT OF TRANSPORTATION



BASE MAP DATE
MARCH, 1996

BASE MAP USED BASED ON NORTH CAROLINA PLANS COORDINATE SYSTEM
NAD 83 / 1983





2020 CAPACITY DEFICIENCIES ON EXISTING & COMMITTED STREET SYSTEM (INCLUDES TIP PROJECTS)

LEGEND

00000 VOLUME OF TRAFFIC ON ROAD
00000 CAPACITY OF THE ROAD (LOS D)

VOLUME TO CAPACITY RATIO
— $0.8 < VC < 1.0$
— $VC \geq 1.0$

FIGURE 7
CHATHAM COUNTY
 NORTH CAROLINA

PREPARED BY THE
 NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 STATEWIDE PLANNING BRANCH
 IN COOPERATION WITH THE
 U.S. DEPARTMENT OF TRANSPORTATION

SCALES
 0 1 2 3 4 5 MILES
 0 1 2 3 4 5 KILOMETERS
 BASE MAP DATE
 MARCH, 1996
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HIGH ACCIDENT INTERSECTIONS

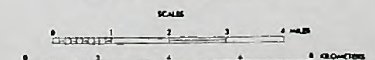
LEGEND

00
● NUMBERED INTERSECTIONS WITH 5 OR MORE ACCIDENTS (JANUARY 1991-DECEMBER 1993)



FIGURE 8
CHATHAM COUNTY
NORTH CAROLINA

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STATEWIDE PLANNING BRANCH
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BASE MAP DATE
MARCH 1996

1:50,000 SCALE (BASED ON NORTH CAROLINA PLANE COORDINATE SYSTEM)
NORTH CAROLINA

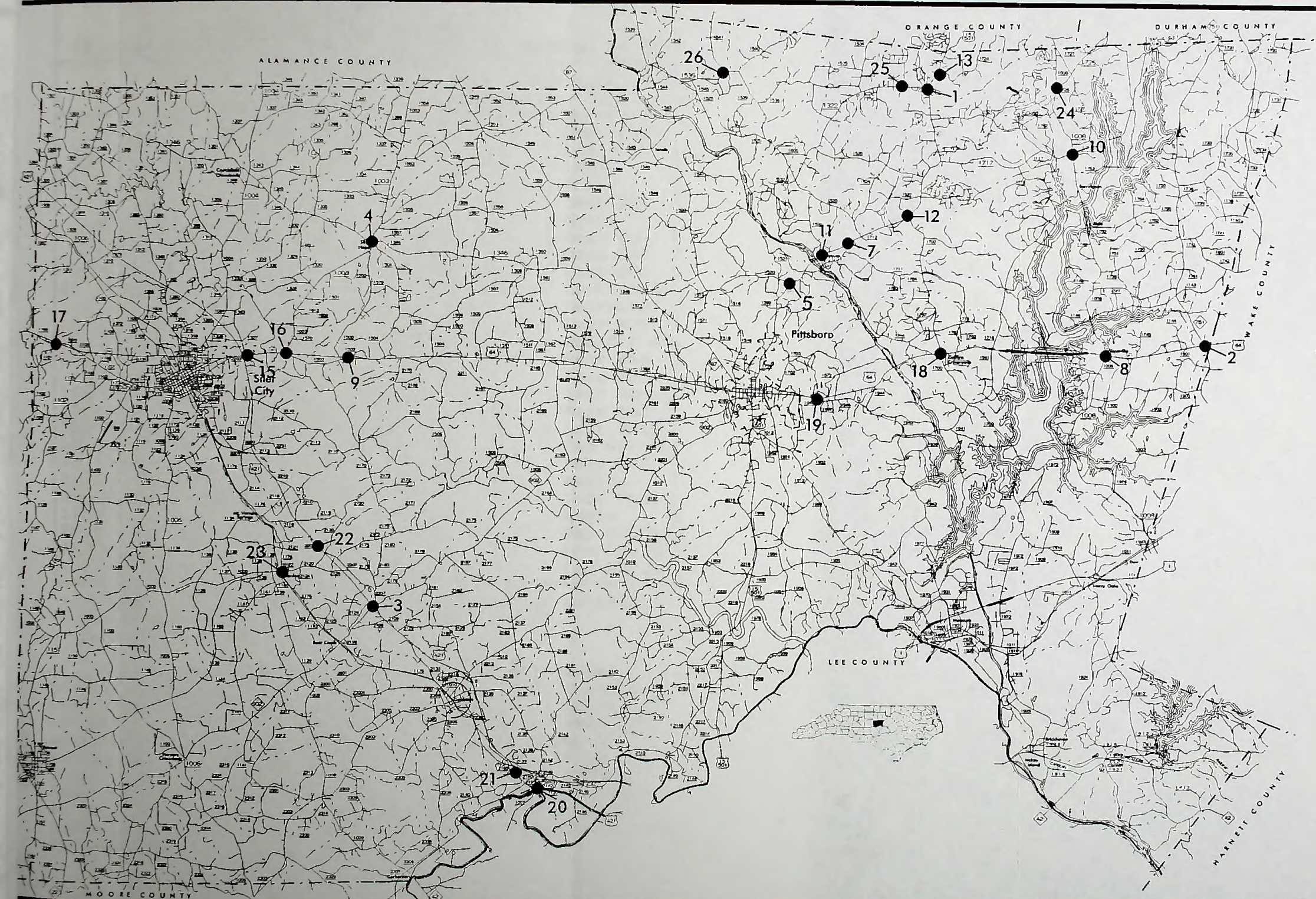


TABLE 7
High Accident Intersections
(5 or more accidents from January 1991 to December 1993)

Intersection	Number of Accidents	Predominant Type
1. US 15/501 at SR 1532 *	19	Rear End
2. US 64 at NC 751 *	10	Angle
3. US 421 at NC 902 *	9	Angle
4. SR 1003 at SR 1346 *	9	Angle
5. US 15/501 at SR 1520	8	Rear End
6. US 15/501 at SR 1721	7	None
7. US 15/501 at SR 1713 *	6	Rear End
8. US 64 at SR 1008	6	Rear End
9. US 64 at SR 1503 **	6	Rear End
10. SR 1008 at SR 1717 *	6	Left&Angle
11. US 15/501 at SR 1524	5	Rear&Left
12. US 15/501 at SR 1700 *	5	Rear End
13. US 15/501 at SR 1724	5	Ran Off Rd
14. US 15/501 at SR 2217	5	Rear End
15. US 64 at US 421	5	Rear End
16. US 64 at SR 1003 *	5	Left Turn
17. US 64 at SR 1101	5	Rear End
18. US 64 at SR 1700	5	Left Turn
19. US 64 at SR 1943	5	Ran Off Rd
20. US 421 at SR 1007	5	Rear End
21. US 421 at SR 2195	5	Angle
22. US 421 at SR 2227	5	Left Turn
23. SR 1005 at SR 1176 *	5	Angle
24. SR 1008 at SR 1726	5	Ran Off Rd
25. SR 1532 at SR 1605	5	Ran Off Rd
26. SR 1539 at SR 1541 *	5	Ran Off Rd

* Indicates intersections having incapacitating accidents.

** Indicates intersections having fatalities and incapacitating accidents.

Some accidents are simply the fault of the driver, however, some may be prevented by an operational changes or even construction improvements. After reviewing these high accident intersections, recommendations could be made that would help minimize the occurrence of certain types of accidents. For example, US 15-501 is scheduled to be widened to a four-lane divided facility and Mann's Chapel Road (SR 1532) is recommended to be widened to five lanes. At this intersection, the predominant rear end accidents could be minimized because the capacity of these roads would be increased.

Bridge Conditions

Bridges are an important element of a highway system. They represent the highest single cost of all elements of the system and any deficiency in a bridge affects the efficiency of the entire transportation system. Bridges also present the greatest opportunity of all potential highway failures for disruption of community welfare and loss of life. Therefore, it is imperative that bridges be constructed to the same design standards as the system of which they are a part.

Congress enacted the National Bridge Inspection Program Standards on April 27, 1971, implementing the Federal Highway Act of 1968. These standards require that "all structures defined as bridges located on any of the Federal-Aid Highway Systems be inspected and the safe load carrying capacity computed at regular intervals, not to exceed two years." A sufficiency index number has been calculated for each bridge to establish eligibility and priority for replacement. The bridges with the highest priority are replaced as the Federal and State funds become available.

The North Carolina DOT's Bridge Maintenance Unit, with assistance from various consultants, inspects all bridges on the State Highway System. The bridges in Chatham County have been analyzed, rated, appraised, and inventoried. The resulting data is then compiled in a more useful form yielding sufficiency ratings for each bridge.

A sufficiency rating is used to determine if a particular bridge is substandard. The sufficiency rating is a method of evaluating factors that help determine whether a bridge is sufficient to remain in service. These factors include structural adequacy and safety, serviceability and functional obsolescence, essentiality for public use, type of structure, and traffic safety features. This procedure results in a sufficiency rating in which 100% represents an entirely sufficient bridge and 0% represents an entirely insufficient or deficient bridge. A sufficiency rating of 50% or less qualifies for Federal Bridge Replacement Funds.

Deficient bridges are categorized as either structurally deficient or functionally obsolete. Bridges in the structurally deficient category have below average ratings in deck superstructure, substructure, overall structural condition, or waterway adequacy. Functionally obsolete bridges have below average ratings in approach roadway alignment, under clearance, deck geometry, waterway adequacy, or structural condition. **Table 8** and **Table 9** show structurally deficient and functionally obsolete bridges with sufficiency ratings below 100%, respectively. The location of these bridges is shown on **Figure 9**.

TABLE 8
Structurally Deficient Bridges

Map Index	Sufficiency Rating	Bridge No.	Location
1 *	2.0	145	SR 1010 @ Rocky River
2	12.4	10	SR 1916 @ Shaddox Creek
3 *	14.3	402	SR 2156 @ Bear Creek
4 *	15.1	51	US 421WBL @ Deep River
5 *	15.7	170	SR 1010 @ Bear Creek
6 *	15.7	425	SR 1176 @ Tick Creek
7 *	17.8	419	SR 1011 @ Haw River
8 *	18.7	426	SR 1176 @ Bear Creek
9	19.3	236	SR 1151 @ Cedar Creek
10 *	20.1	154	SR 2145 @ Georges Creek
11	21.0	88	SR 1525 @ Ferrell's Creek
12	21.3	247	SR 1100 @ Brush Creek
13	21.3	129	SR 2159 @ Rocky River
14	22.4	142	SR 2170 @ Meadows Creek
15	23.0	296	SR 1308 @ Rocky River
16 *	23.6	147	SR 1953 @ Rocky River
17	25.0	34	US 64 @ Rocky River
18	25.1	172	SR 2189 @ Bear Creek
19	27.8	200	SR 1009 @ Bear Creek
20	28.5	407	SR 1556 @ Terrell Creek
21 *	31.5	405	SR 1713 @ Haw River
22 *	33.1	149	SR 2155 @ Bear Creek
23	33.4	245	SR 1148 @ Little Brush Ck.
24	33.8	166	SR 2142 @ Cedar Creek
25	34.2	325	SR 2165 @ Landrum Creek
26	37.8	251	SR 1102 @ Brush Creek
27	37.9	108	SR 1549 @ Terrell Creek
28	39.8	306	SR 1303 @ Rocky River
29	40.0	383	SR 1355 @ Rocky River
30	40.0	253	SR 1373 @ Rocky River
31	40.3	11	US 64 @ Southern RR
32	42.3	23	SR 1108 @ US 64
33	45.2	410	SR 1522 @ Creek
34	47.1	264	SR 1337 @ Rocky River
35	48.8	229	SR 2314 @ Creek
36	49.4	7	US 1 @ Deep River
37	49.5	157	SR 2145 @ Cedar Creek
38	52.5	341	SR 1130 @ Brush Creek
39	53.9	474	SR 1134 @ Bear Creek
40	55.3	475	NC 902 @ Tick Creek
41	56.3	117	SR 1559 @ Dry Creek
42	56.7	94	SR 1520 @ Dry Creek
43	57.3	2	SR 2113 @ Love's Creek
44	65.1	68	US 1 @ Seaboard RR
45	66.7	254	SR 1332 @ Rocky River
46	69.2	45	US 64 @ Roberson Creek

TABLE 8 (Cont.) Structurally Deficient Bridges			
Map Index	Sufficiency Rating	Bridge No.	Location
47	69.2	150	SR 2222 @ Creek
48	72.4	470	SR 1362 @ Lacy's Creek
49	72.8	439	SR 1011 @ Shaddox Creek
50	73.0	471	SR 2113 @ Meadow Creek
51	83.6	59	US 64WBL @ Jordan Lake

TABLE 9 Functionally Obsolete Bridges			
Map Index	Sufficiency Rating	Bridge No.	Location
52 *	42.6	420	SR 2330 @ Little Indian Ck
53	42.8	404	SR 2167 @ Landrum Creek
54	49.7	20	NC 902 @ Sandy Branch
55	51.1	252	SR 1127 @ Blood Run Ck.
56	53.0	40	NC 902 @ Landrum Creek
57	54.7	9	SR 1916 @ Gulf Creek
58	58.0	17	US15/501 @ Robeson Creek
59	60.7	287	SR 1305 @ Rocky River
60	63.0	423	SR 1514 @ Harland Creek
61	63.9	56	NC 42 @ Buckhorn Creek
62	64.7	246	SR 1100 @ Brush Creek
63	67.0	61	NC 902 @ Robeson Creek
64	68.2	421	SR 1503 @ Marsh Creek
65	68.4	422	SR 1564 @ Creek
66	69.4	411	SR 1107 @ Blood Run Creek
67	72.9	37	US 15/501 @ Pokeberry Ck.
68	75.1	39	NC 42 @ Norfolk South. RR
69	77.2	35	US 421 @ Norfolk South. RR
70	78.0	26	US 421 @ Southern RR

* Included in the 1996-2002 TIP.

LOCATION OF DEFICIENT BRIDGES

LEGEND

- STRUCTURALLY DEFICIENT BRIDGES
- ▲ FUNCTIONALLY OBSOLETE BRIDGES



FIGURE 9
CHATHAM COUNTY
NORTH CAROLINA

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STATEWIDE PLANNING BRANCH
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION



BASE MAP DATE
MARCH, 1996

BASE MAP DATE: MARCH, 1996
BASE MAP DATE: MARCH, 1996

Public Transportation Division
Chatham County Summary

Because Chatham County is considered a county of rural nature, it does not qualify for urban transit assistance funding for such service as a fixed route bus system. The County does receive funding assistance for Human Service transportation and provides this service.

The Steering Committee overseeing the Thoroughfare Plan Update expressed interest in public transportation opportunities that may exist, or need to be planned, for the many citizens commuting to other counties for work. Indeed, Statewide Planning has shown a high amount of out-commuting of work trips to Guilford, Orange, and Wake Counties.

One of the options discussed was ridesharing programs where commuters going to similar areas could carpool or vanpool together to the worksite. Chatham County can be served by two different ridesharing services already operating in the state. "Ridesharing and Vanpool Services of the Piedmont" (RSVP) is based in Winston-Salem as part of the Winston-Salem Transit Authority. They market ridesharing to companies and provide carpool and vanpool matches as a service to the company employees. Vanpools are provided at a monthly rate to each passenger. Typically, the rate is much lower than driving a single occupant vehicle on a daily basis. RSVP would be a good resource for those individuals commuting to locations in Guilford or Alamance Counties.

The Triangle Transit Authority, based in Research Triangle Park, provides the same type of service for commuters throughout the triangle region.

Park-and-Ride Lots were also mentioned by the Steering Committee as an alternative the County would like to investigate. Because there is a volume of commute traffic on several major thoroughfares in the County (US 15/501, US 64, US 421,) park-and-ride lots may be a viable option for the county to consider. Park-and-Ride lots must be appropriately located in order to operate in an efficient manner. It is critical that they be located with easy access, along major traffic corridors, and near clusters of residential areas.

There is a Park-and-Ride lot located on US 15/501 just north of the Orange County/Chatham County line. It stores several autos daily, and many of these likely are commuters from Chatham County.

Funding for Park-and-Ride lots would either need to be provided locally, or coordinated with the North Carolina Department of Transportation. A feasibility study is required prior to funding consideration. As roadway improvement projects are scheduled and implemented on major thoroughfares in the County, local officials should work to implement park-and-ride facilities as part of the roadway project.

VI. ENVIRONMENTAL CONCERNS

In the past several years, environmental considerations associated with highway construction have come to the forefront of the planning process. The legislation that dictates the necessary procedures regarding environmental impacts is the National Environmental Policy Act (NEPA). Section 102 of this act requires the execution of an environmental impact statement, or EIS, for road projects that have a "significant impact" on the environment. Included in the EIS are the project's impacts on the physical environment, the social and cultural environment, and the economic environment. **Table 2**, on page 16 of this report, lists these environmental considerations in more detail.

This report does not cover the environmental considerations in as much detail as an EIS does, however, consideration for many of these factors was incorporated in developing this Thoroughfare Plan. These factors were also used in evaluating the recommended improvements during the benefit cost analysis, presented in **Chapter II** of this report.

Wetlands

Wetlands are those lands where saturation with water is the dominant factor in determining the nature of soil development and the types of plant and animal communities living in the soil. Wetlands are crucial ecosystems in our environment. They help regulate and maintain the hydrology of our rivers, lakes, and streams by slowly storing and releasing flood waters. They help maintain the quality of our water by storing nutrients, reducing sediment loads, and reducing erosion. They are also critical to fish and wildlife populations. Wetlands provide an important habitat for about one-third of the plant and animal species that are federally listed as threatened or endangered.

Section 404 of the Clean Air Act of 1977 requires no disruption of wetlands if there is a practical and feasible alternative that would have a less adverse impact on the area. Also, compensatory mitigation is required if wetlands are impacted.

There were minimal impacts to wetlands in Chatham County from the recommended improvements. Impacts were avoided or minimized whenever possible, while preserving the integrity of the Thoroughfare Plan. Impacts to wetlands were determined using the National Wetlands Inventory Mapping which is available from the U.S. Fish and Wildlife Service. It is important to note that this mapping is a

draft and is the best estimate of the approximate location of wetlands. Development was based on aerial photography and has not been field checked. Therefore, more extensive environmental investigations would be required prior to the design of a facility.

Threatened and Endangered Species

A preliminary review of the Federally Listed Threatened and Endangered Species in Chatham County was done to determine the effects that recommended improvements could have on the wildlife. These species were identified using mapping from the North Carolina Department of Environment, Health, and Natural Resources.

The Threatened and Endangered Species Act of 1973 allows the U.S. Fish and Wildlife Service to impose measures on the Department of Transportation to mitigate the environmental impacts of a road project on endangered plants and animals and critical wildlife habitats. By locating rare species in the planning stage of road construction, it is possible to avoid or minimize these impacts.

There are various plant and animal species listed as Natural Heritage Element Occurrences (NHEO) in Chatham County. Preliminary investigations show no recommended improvements adversely impact these occurrences, however, detailed field investigations are recommended prior to construction of any highway project.

Historic Sites

The locations of historic sites in Chatham County were investigated to determine the possible impacts of the various recommended improvements. The federal government has issued guidelines requiring all State Transportation Departments make special efforts to preserve historic sites. In addition, the State of North Carolina has issued its own guidelines for the preservation of historic sites. These two pieces of legislation are described below:

National Historic Preservation Act - Section 106 of this act requires the Department of Transportation to identify historic properties listed in the National Register of Historic Places and properties that are eligible to be listed on the register. DOT must consider the impact of its road projects on these properties and consult with the Federal Advisory Council on Historic Preservation.

NC General Statute 121-12(a) - This statute requires DOT to identify historic properties listed on the National Register, but not necessarily those eligible to be listed. DOT must consider impacts and consult with the North Carolina Historical Commission, but is not bound by their recommendations.

After researching historic information in Chatham County, it was found that there are various historic structures across the County. Preliminary investigations show that no recommended improvements would impact any of these historic structures. Further investigation is recommended prior to construction of any project.

In addition to the previous information, the local area has undergone studies in two important environmental areas. One is the Inventory of the Natural Areas and Wildlife Habitats of Chatham County, North Carolina, written by Hall and Boyer, 1992. The second is The Architectural Heritage of Chatham County, North Carolina, by Osborn and Seldon-Sturgill, 1991.

Appendix A

County Thoroughfare Planning Principles

Purpose of Planning

There are many advantages to thoroughfare planning. The primary objective is to assure that the road system will progressively develop to serve future travel needs. By developing a thoroughfare plan, provisions for roadway improvements can be incorporated into policy decisions so that, as the need arises, feasible opportunities to make improvements exist.

There are two major benefits derived from thoroughfare planning. First, each road or highway can be designed to perform a specific function and provide a specific level of service. This permits savings in right-of-way, construction, and maintenance costs. It also protects residential neighborhoods and encourages stability in travel and land use patterns. Second, local officials are informed of future improvements and can incorporate them into planning and policy decisions. This will permit developers to design subdivisions in a non-conflicting manner, direct school and park officials to better locate their facilities, and minimize damage to property and community appearance that is sometimes associated with road improvements.

County Thoroughfare Planning Concept

The purpose of thoroughfare planning is to classify a functional system of roads that provide direct, efficient, and safe travel. Different roads in the county are designed to have specific functions and levels of service, therefore minimizing the conflict between roadway capacity and land development. It is recommended to update the Thoroughfare Plan every ten years to analyze the functions of the roads throughout an area. This proposed Plan is an update of the 1983 Chatham County Thoroughfare Plan shown in **Figure 10**.

In the county thoroughfare plan, roads are designated as either urban or rural. Local municipalities generally have planning jurisdiction over roads within their planning area. The county generally has planning jurisdiction over roads outside the urban planning areas. In those urban areas where no urban thoroughfare plan has been developed, roads are generally designated as rural for the purpose of developing a thoroughfare plan.

Rural Classification System

The county thoroughfare plan is based on the rural classification system. Those facilities that fall outside the urban planning area are classified as principal arterials, minor arterials, collector roads, and local roads. A functionally classified rural highway system is shown in **Figure 11** and described as follows.

- **Principal Arterials:** These roads primarily serve statewide or interstate travel. Principal arterials serve all urban areas with a population greater than 50,000 and the majority of those with a population greater than 5,000. Interstates constitute a significant portion of principal arterials.
- **Minor Arterials:** These roads primarily serve intercounty travel. Minor arterials, along with principal arterials, link cities, larger towns, and other major attractions, such as large resorts.
- **Collector Roads:** These roads generally serve intracounty travel rather than statewide travel. Rural collectors are further divided into major and minor collectors. Major collectors provide service to larger towns not directly served by principal or minor arterials. Minor collectors collect traffic from local roads.
- **Local Roads:** These roads consist of all roads that are not classified as principal arterials, minor arterials, or collector roads. They are often residential, industrial, or commercial streets.

Urban Classification System

The urban thoroughfare plan is based on the urban classification system. Those facilities that fall inside the urban planning area are classified as interstates/freeways, major thoroughfares, minor thoroughfares, or local access streets. For information on the classifications within the urban areas of Siler City and Pittsboro, refer to the mutually adopted thoroughfare plans shown in **Figure 12** and **Figure 13**, respectively.

The northeast section of Chatham County is also part of the Durham-Chapel Hill-Carrboro MPO. For information regarding that Thoroughfare Plan, contact the respective local area.

CHATHAM COUNTY THOROUGHFARE PLAN SEPTEMBER 28, 1983

ADOPTED BY CHATHAM COUNTY OCT. 3, 1983

RECOMMENDED APPROVAL BY
PLANNING & RESEARCH BRANCH OCT. 5, 1983 *Thurston*

ADOPTED BY N. C. BOARD OF TRANSPORTATION NOV. 18, 1983

REVISIONS

CHATHAM COUNTY	RECOMMENDED APPROVAL BY PLANNING & RESEARCH BRANCH	N. C. BOARD OF TRANSPORTATION
	DEC. 9, 1983 <i>Thurston</i>	

PRINCIPAL ARTERIALS	EXISTING	PROPOSED
INTERSTATE	—————	—————
OTHER	—————	—————
MINOR ARTERIALS	—————	—————
MAJOR COLLECTORS	—————	—————
MINOR COLLECTORS	—————	—————
URBAN MAJOR THOROUGHFARE	—————	—————
URBAN FREEWAY OR EXPRESSWAY	—————	—————
URBAN THOROUGHFARE	—————	—————
PLANNING AREA BOUNDARY	—————	—————
INTERCHANGE	●	●



FIGURE 10

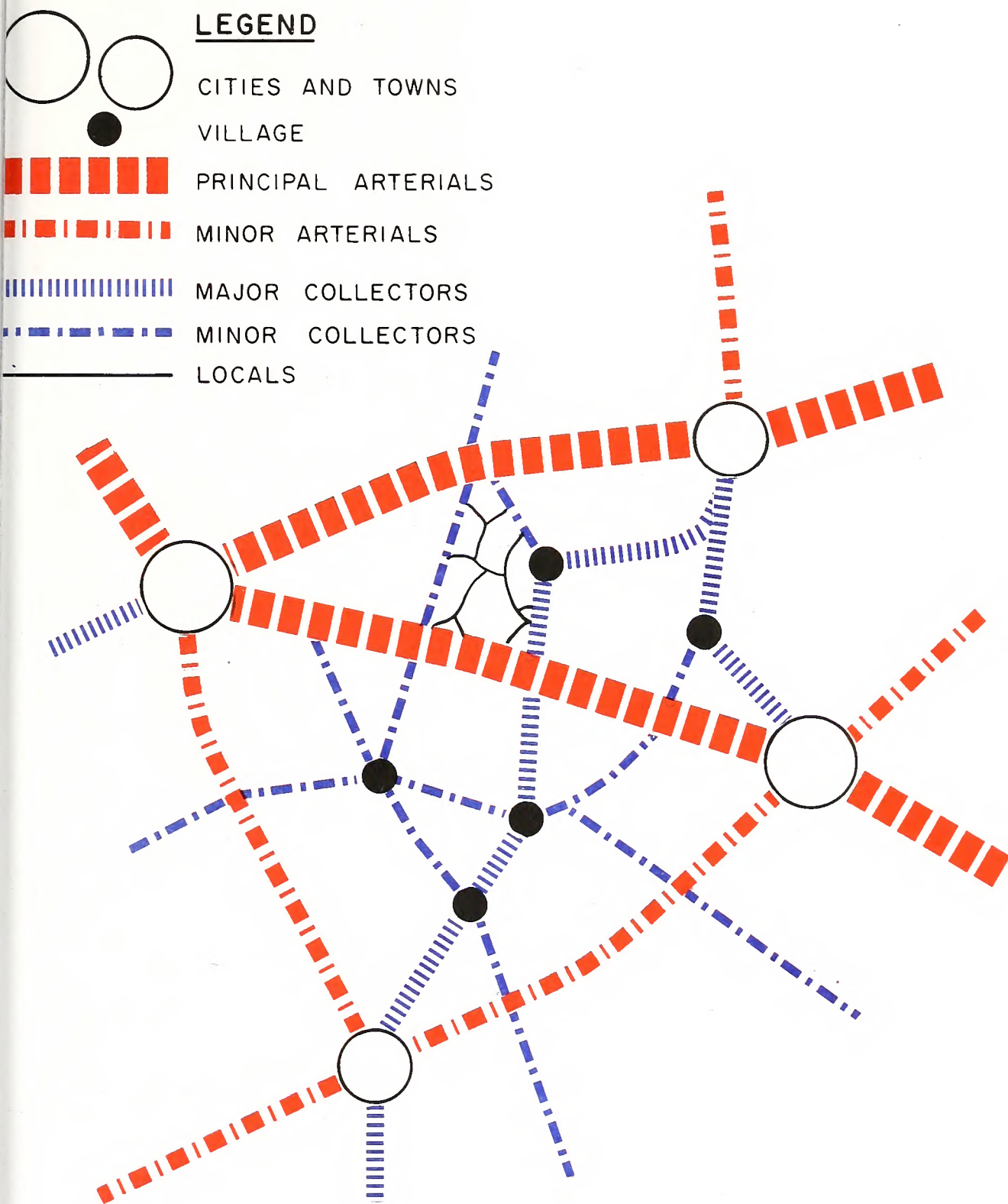
CHATHAM COUNTY NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS—PLANNING AND RESEARCH BRANCH
IN COOPERATION WITH THE
U. S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

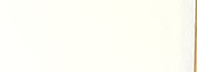
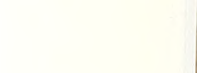
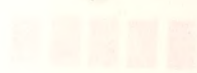
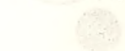


NOTE: MAP INCLUDES ONLY STATE MAINTAINED ROADS OR IMPORTANT NON-STATE MAINTAINED ROADS. MAJOR NOT SHOWN ON PORTAGE ROADS. ROADS SHOWN AS OF JAN. 1, 1983.

1:25,000 SCALE BASED ON NORTH CAROLINA PLAT COORDINATE SYSTEM
POLYLINE REDUCTIONS



SCHEMATIC ILLUSTRATION
OF FUNCTIONALLY CLASSIFIED
RURAL HIGHWAY NETWORK



SILER CITY THOROUGHFARE PLAN

MAP DATE
MARCH 11, 1996

PUBLIC HEARING

ADOPTED BY: MARCH 18, 1996
TOWN OF SILER CITY

RECOMMENDED BY: MARCH 18, 1996
STATEWIDE PLANNING BRANCH

ADOPTED BY: MARCH 26, 1996
N. C. DEPT OF TRANSPORTATION
APRIL 12, 1996

LEGEND

	Existing	Proposed
Freeway/Expressway		
Major Thoroughfare		
Minor Thoroughfare		
Interchange		
Grade Separation		



FIGURE 12
TOWN OF
SILER CITY
CHATHAM COUNTY
NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS-STATEWIDE PLANNING BRANCH
IN COOPERATION WITH
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

0 1 2
MILES





ADOPTED BY:
TOWN OF PITTSBORO 1-13-92

RECOMMENDED FOR APPROVAL BY:
STATEWIDE PLANNING BRANCH 3-20-92

ADOPTED BY:
DEPT. OF TRANSPORTATION 4-3-92

PUBLIC MEETING: 1-13-92

LEGEND	
MAJOR THOROUGHFARE	EXISTING
FREEWAYS	PROPOSED
OTHER	
MINOR THOROUGHFARE	
INTERCHANGES	
GRADE SEPARATIONS	

FIGURE 13
THOROUGHFARE PLAN
PITTSBORO
AND VICINITY

CHATHAM COUNTY
NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS STATEWIDE PLANNING BRANCH

IN COOPERATION WITH
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
NOVEMBER 1991

0 1500 3000 4500 6000
SCALE IN FEET
JUNE 1991

APPENDIX B

THOROUGHFARE PLAN STREET TABULATIONS AND RECOMMENDATIONS

SECTION	-----PRESENT-----					-----FUTURE-----				
	DIST (KM)	RDWY (M)	ROW (M)	CAP (VEH)	1994 ADT	CAP (VEH)	2020 ADT	RDWY XSEC	ROW (M)	ULT ROW
Alex Cockman Rd (SR 2163) US 64 - NC 902	5.2	7.3	18	11000	300	11000	1000	K	ADQ	--
Alston Bridge Rd (SR 2110) Sam Fields Rd - Reives Chp Rd	2.4	6.7	18	11000	400	11000	1200	K	ADQ	--
Beaver Creek Rd (SR 1008) Pea Ridge Rd - US 64	5.2	7.3	18	11000	1800	11000	5000	K	ADQ	--
Blood Run Rd (SR 1102) SilerCity WPAB-Coward Rd	1.8	6.7	18	11000	650	11000	2000	K	ADQ	--
Bonlee-Bennett Rd (SR1005) Old US 421-Chatham St Rd	11.9	7.3	18	11000	1700	11000	3500	K	ADQ	--
Chatham St Rd (SR 1151) Bonlee-Bennett Rd - Washington St	6.6	7.3	18	11000	1100	11000	2500	K	ADQ	--
Chicken Bridge (SR 1545) Mann Rd - Crawford Dairy	5.6	6.7	18	11000	1100	11000	2500	K	ADQ	--
Corinth Rd (SR 1916) Old US 1 - NC 42	9.4	7.3	18	11000	2100	11000	5000	K	ADQ	--
Coward Rd (SR 1104) Blood Run Rd-Randolph Co	0.5	6.0	18	10000	NA	10000	NA	K	ADQ	--
Crawford Dairy (SR 1539) Chicken Bridge - Jones Ferry Rd	2.1	6.7	18	11000	1300	11000	2900	K	ADQ	--

ADQ - Adequate
 ADT - Average Annual Daily Traffic
 CAP - Capacity at Level of Service D (1994 HCM)
 NA - Not available
 PAB - Planning Area Boundary
 2020 ADT - Based on Implementation of Thoroughfare Plan
 ULT ROW - Ultimate Recommended ROW

1 meter (m) = 3.28 feet

1 kilometer (km) = 0.62 miles

THOROUGHFARE PLAN STREET TABULATIONS AND RECOMMENDATIONS

SECTION	-----PRESENT-----					-----FUTURE-----				
	DIST (KM)	RDWY (M)	ROW (M)	CAP (VEH)	1994 ADT	CAP (VEH)	2020 ADT	RDWY XSEC	ROW (M)	ULT ROW
Farrington Rd (SR 1008)										
US 64 - Connector Rd	12.9	7.3	18	11000	2700	11000	6500	K	ADQ	--
Connector Rd -										
Old Farrington Rd	0.8	7.3	18	11000	5000	28000	16000	*N	ADQ	--
Old Farrington-Orange Co	2.0	7.3	18	11000	3000	11000	6900	K	ADQ	--
Foust Rd (SR 1300)										
Randolph Co-Alamance Co	7.7	6.7	18	11000	800	11000	2000	K	ADQ	--
Goldston-Carbonton Rd										
(SR 2306)										
Goldston-Glendon Rd-NC42	8.9	6.0	18	10000	NA	10000	NA	K	ADQ	--
Goldston-Glendon Rd										
(SR 2303)										
Goldston-Carbonton Rd -										
Old US 421	0.4	6.0	18	10000	NA	10000	NA	K	ADQ	--
Goldston-Pittsboro Rd										
(SR 1010)										
Old US 421-Pittsboro PAB	14.3	7.3	18	11000	1300	11000	2500	K	ADQ	--
Green Level Rd (SR 1742)										
NC 751 - Wake Co	3.5	6.7	18	11000	NA	11000	NA	K	ADQ	--
Hamlet Chp Rd (SR 1525)										
US 15-501 - Mann's ChpRd	4.0	6.7	18	11000	NA	15000	NA	*H	ADQ	--
Mann's ChpRd-Jones Ferry	2.6	6.7	18	11000	NA	11000	NA	K	ADQ	--
Howards Mill Rd (SR 1002)										
NC 22/42 - Randolph Co	0.8	6.0	18	10000	NA	10000	NA	K	ADQ	--
Ike Brooks Rd (SR 2120)										
Old US 421-Reives Chp Rd	4.0	6.0	18	10000	300	10000	1000	K	ADQ	--
Jack Bennett Rd (SR 1717)										
US 15-501 - Connector Rd	2.4	6.7	18	11000	2100	15000	10800	*H	ADQ	--
Connector Rd - Lystra Rd	2.8	6.7	18	11000	2000	11000	2200	K	ADQ	--
Jerry Frye Rd (SR 1164)										
NC 22/42 - Randolph Co	1.6	6.0	18	10000	NA	10000	NA	K	ADQ	--
Jones Ferry Rd (SR 1540)										
Hamlet Chp Rd - OrangeCo	3.2	6.7	18	11000	NA	11000	NA	K	ADQ	--

* Wider outside lanes to accommodate for bicycles.

THOROUGHFARE PLAN STREET TABULATIONS AND RECOMMENDATIONS

SECTION	-----PRESENT-----					-----FUTURE-----				
	DIST (KM)	RDWY (M)	ROW (M)	CAP (VEH)	1994 ADT	CAP (VEH)	2020 ADT	RDWY XSEC	ROW (M)	ULT ROW
Lystra Rd (SR 1721) US 15-501 - FarringtonRd	7.3	6.7	18	11000	3200	11000	3200	K	ADQ	--
Mann Rd (SR 1546) NC 87 - Chicken Bridge	0.8	6.7	18	11000	800	11000	2500	K	ADQ	--
Mann's Chp Rd (SR 1525) Hamlet Chp-Poythress Rd	4.8	6.7	18	11000	NA	15000	NA	*H	ADQ	--
Poythress Rd - US 15-501	3.2	7.3	18	11000	5600	24000	13800	*N	27	--
Martha's Chp Rd (SR 1752) Farrington Rd - NC 751	4.4	6.7	18	11000	NA	11000	NA	K	ADQ	--
Moncure-Pittsboro (SR 1012) Old US 1 - Pittsboro PAB	8.1	6.7	30	11000	1900	11000	5000	K	ADQ	--
NC 22 Moore Co - NC 42	1.8	6.7	18	11000	1900	11000	4500	K	ADQ	--
NC 42 Harnett Co - Lee Co	3.1	6.7	18	11000	2600	11000	5300	K	ADQ	--
Lee Co - NC 22/42	6.2	6.7	18	11000	800	11000	2800	K	ADQ	--
NC 22/42 NC 42 - Randolph Co	17.3	6.7	30	11000	2200	11000	5500	K	ADQ	--
NC 902 NC 22/42 - Pittsboro PAB	34.2	6.7	30	11000	1300	11000	2500	K	ADQ	--
NC 87 Pittsboro PAB-AlamanceCo	10.8	6.7	20	11000	1800	11000	4000	K	ADQ	--
NC 751 US 64 - Durham Co	14.9	6.7	20	11000	3100	11000	9700	*H	ADQ	27
North Pea Ridge (SR 1700) US 64 - US 15-501	6.9	7.3	18	11000	1500	11000	4000	K	ADQ	--
O'Kelley Chp Rd (SR 1731) NC 751 - Wake Co	4.4	6.7	18	11000	NA	11000	NA	H	ADQ	--
Old Farrington Rd (SR1726) Farrington Rd - DurhamCo	2.4	6.7	18	11000	2700	28000	12000	B	27	--
Old US 1 (SR 1011) Lee Co - Wake Co	13.3	7.3	18	11000	1500	11000	3500	K	ADQ	--

* Wider outside lanes to accommodate for bicycles.

THOROUGHFARE PLAN STREET TABULATIONS AND RECOMMENDATIONS

SECTION	-----PRESENT-----					-----FUTURE-----				
	DIST (KM)	RDWY (M)	ROW (M)	CAP (VEH)	1994 ADT	CAP (VEH)	2020 ADT	RDWY XSEC	ROW (M)	ULT ROW
Old US 421 (SR 1176) US 421 - Siler City PAB	19.0	7.3	NA	11000	NA	11000	NA	K	ADQ	--
Pea Ridge Rd (SR 1972) Old US 1-Beaver Creek Rd	10.2	7.3	18	11000	1500	11000	4000	K	ADQ	--
Piney Grove Ch Rd (SR1362) Siler City PAB-Foust Rd	6.5	6.7	18	11000	NA	11000	NA	K	ADQ	--
Proposed Connector Rd Jack Bennett - Lystra Rd	2.2	--	--	---	--	12000	9000	K	21	28
Lystra Rd -Farrington Rd	2.0	--	--	---	--	12000	11000	K	21	28
Reives Chapel Rd (SR 2170) Ike Brooks Rd - US 64	6.5	6.7	18	11000	350	11000	1000	K	ADQ	--
Sam Fields Rd (SR 2113) Siler City PAB - Alston Bridge Rd	2.3	6.7	18	11000	NA	11000	NA	K	ADQ	--
Silk Hope Rd (SR 1003) Siler CityPAB-AlamanceCo	12.9	7.3	18	11000	1500	11000	3500	K	ADQ	--
Silk Hope Rd (SR 1346) Silk Hope-Liberty -NC 87	25.4	7.3	18	11000	800	11000	2000	K	ADQ	--
Siler City-Glendon(SR1006) Moore Co - SilerCity PAB	17.7	7.3	18	11000	2700	11000	6000	K	ADQ	--
SilerCity PAB-RandolphCo	4.0	7.3	18	11000	2300	11000	5000	K	ADQ	--
Silk Hope-Liberty (SR1301) Silk Hope Rd-Alamance Co	5.0	7.3	18	11000	800	11000	1700	K	ADQ	--
Snow Camp Rd (SR 1004) Siler CityPAB-AlamanceCo	9.3	7.3	18	11000	1600	11000	5000	K	ADQ	--
US 64 Wake Co - Pittsboro PAB	14.5	8.0	30	12000	8200	38000	22000	A	60	--
Pittsboro PAB - Siler City PAB	15.3	8.0	50	12000	7000	38000	20000	A	60	--
Siler CityPAB-RandolphCo	1.5	8.0	50	12000	6200	38000	15200	A	60	--
US 64 Bypass US 64 - Pittsboro PAB	2.1	--	--	---	---	45000	15000	A	60	--

* Wider outside lanes to accommodate for bicycles.

THOROUGHFARE PLAN STREET TABULATIONS AND RECOMMENDATIONS

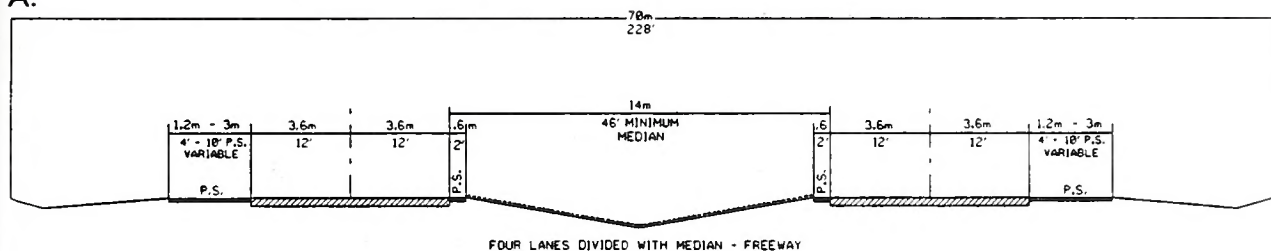
SECTION	-----PRESENT-----					-----FUTURE-----				
	DIST (KM)	RDWY (M)	ROW (M)	CAP (VEH)	1994 ADT	CAP (VEH)	2020 ADT	RDWY XSEC	ROW (M)	ULT ROW
US 15-501 S Lee Co - Pittsboro PAB	10.5	8.0	NA	12000	5800	42000	15000	A	60	--
US 15-501 N Pittsboro PAB - OrangeCo	13.4	8.0	30	12000	17700	42000	32500	*A	60	--
US 1 Wake Co - Lee Co	10.9	8.0	70	12000	7900	54000	17000	A	ADQ	--
US 421 Lee Co - Siler City PAB	24.2	8.0	70	12000	8600	42000	18000	A	ADQ	--
Siler CityPAB-RandolphCo	3.6	8.0	70	12000	6300	54000	17000	A	ADQ	--
Washington St (SR 1163) Chatham St Rd - NC 42/22	0.3	6.0	18	10000	NA	11000	NA	K	ADQ	--

* Wider outside lanes to accommodate for bicycles.

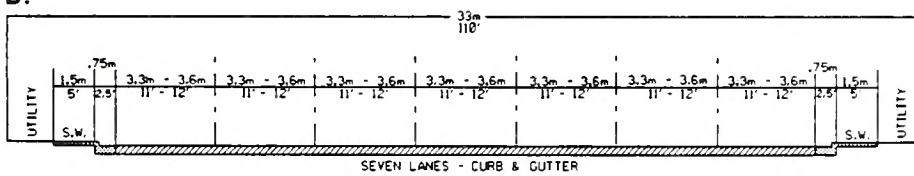


TYPICAL THOROUGHFARE CROSS SECTIONS

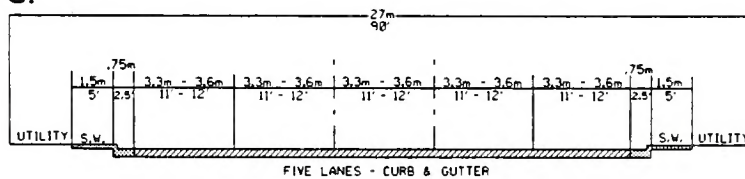
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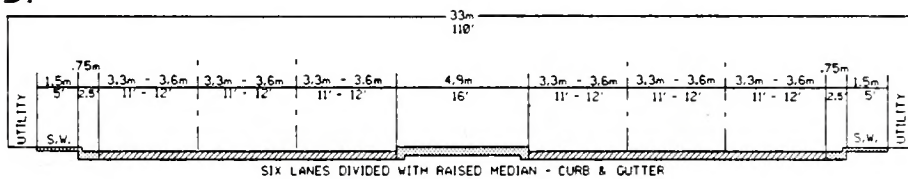
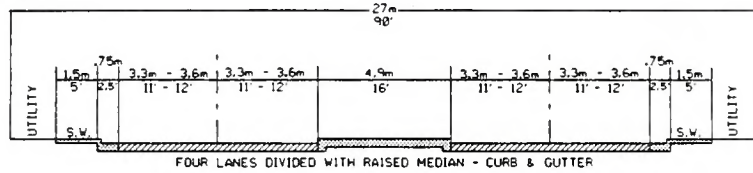


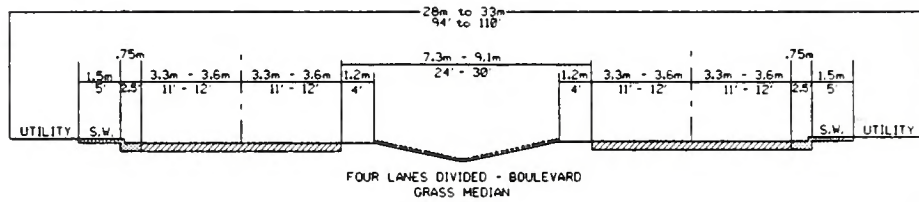
FIGURE 14

TYPICAL THOROUGHFARE CROSS SECTIONS

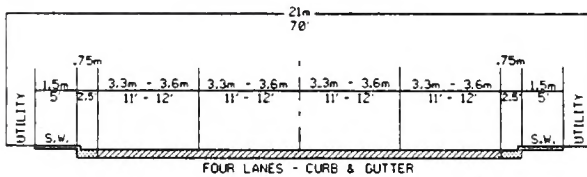
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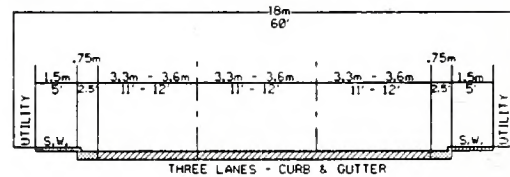
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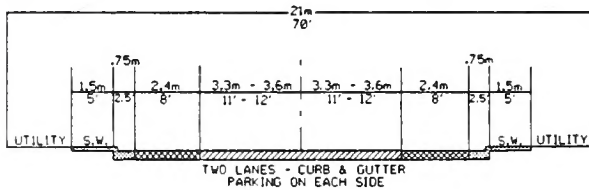
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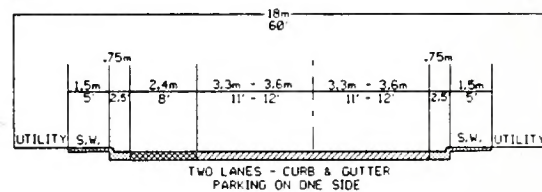
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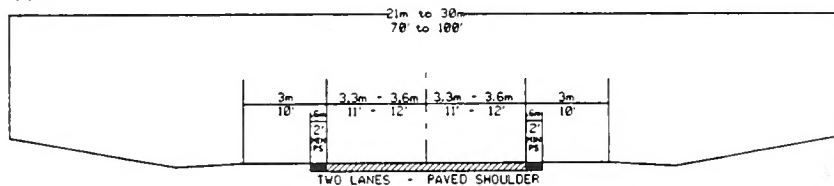
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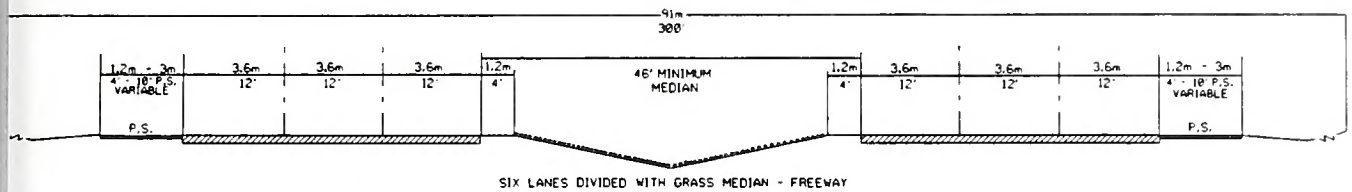
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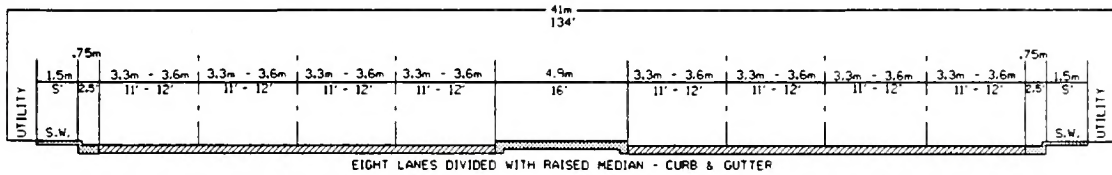
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TYPICAL THOROUGHFARE CROSS SECTIONS

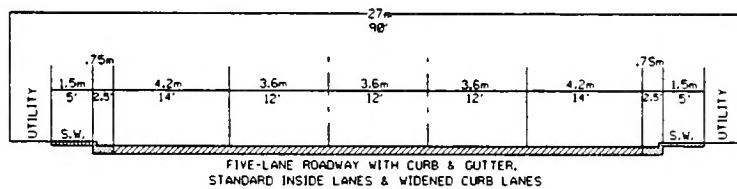


M.

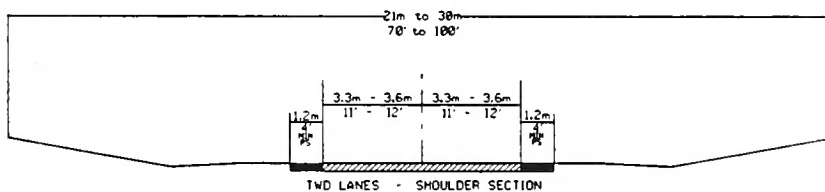


TYPICAL THOROUGHFARE CROSS SECTIONS FOR ACCOMMODATING BICYCLES

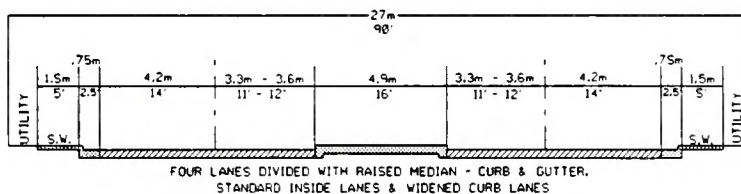
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O.



P.



APPENDIX C

Proposed Northern Connector

Purpose & Need of Proposed Facility

In May 1989, an Origin & Destination Survey was conducted south of the intersection of Jack Bennett Road and US 15-501. The results from that survey found that 24% of the vehicles travelling north on US 15-501 had destinations in Durham, RTP, or Raleigh. As a part of this study, a traffic forecast was done and comprehensive turning movement counts were taken in the area to support these findings. Even with the current widening of US 15-501 to four lanes, the facility is still projected to be nearing capacity by the design year 2020. Using general information obtained from the O & D Survey, it was determined that an improved connector road in this area would potentially attract additional traffic off of US 15-501 by providing a more direct route to destinations in Durham, RTP, and Raleigh. This would, in turn, reduce the need for US 15-501 to be widened to six lanes in the next 25 years.

Traffic Forecast of Proposed Facility

It was determined that a traffic forecast for the proposed facility would be useful in supporting the need for the facility. This forecast would yield information on projected traffic conditions based on existing travel patterns. To assist with the analysis of traffic patterns between US 15-501 and Durham, RTP, and Raleigh, turning movement counts were taken at key intersections in northeast Chatham County in March 1996. This provided valuable data as to the traffic currently using existing routes other than US 15-501 to reach those destinations. From this analysis, it was estimated that approximately 2,400 vpd currently travelling on US 15/501 are turning off and using other existing facilities in the area to reach destinations in Durham, RTP, and Raleigh. Based on these turning movements, along with the results from the O & D Survey, it was determined that the proposed Connector would attract an additional 4,500 vpd from US 15-501 by the year 2020. Adding these trips to those already using other existing roads for that purpose, the Connector would result in a projected volume around 10,000 vpd by 2020.

Presented on the following pages are intersection diagrams demonstrating traffic information used in determining the need for this facility. The first diagram represents existing and projected traffic volumes without the proposed connector. The second diagram shows the actual turning movement counts that were taken and used to

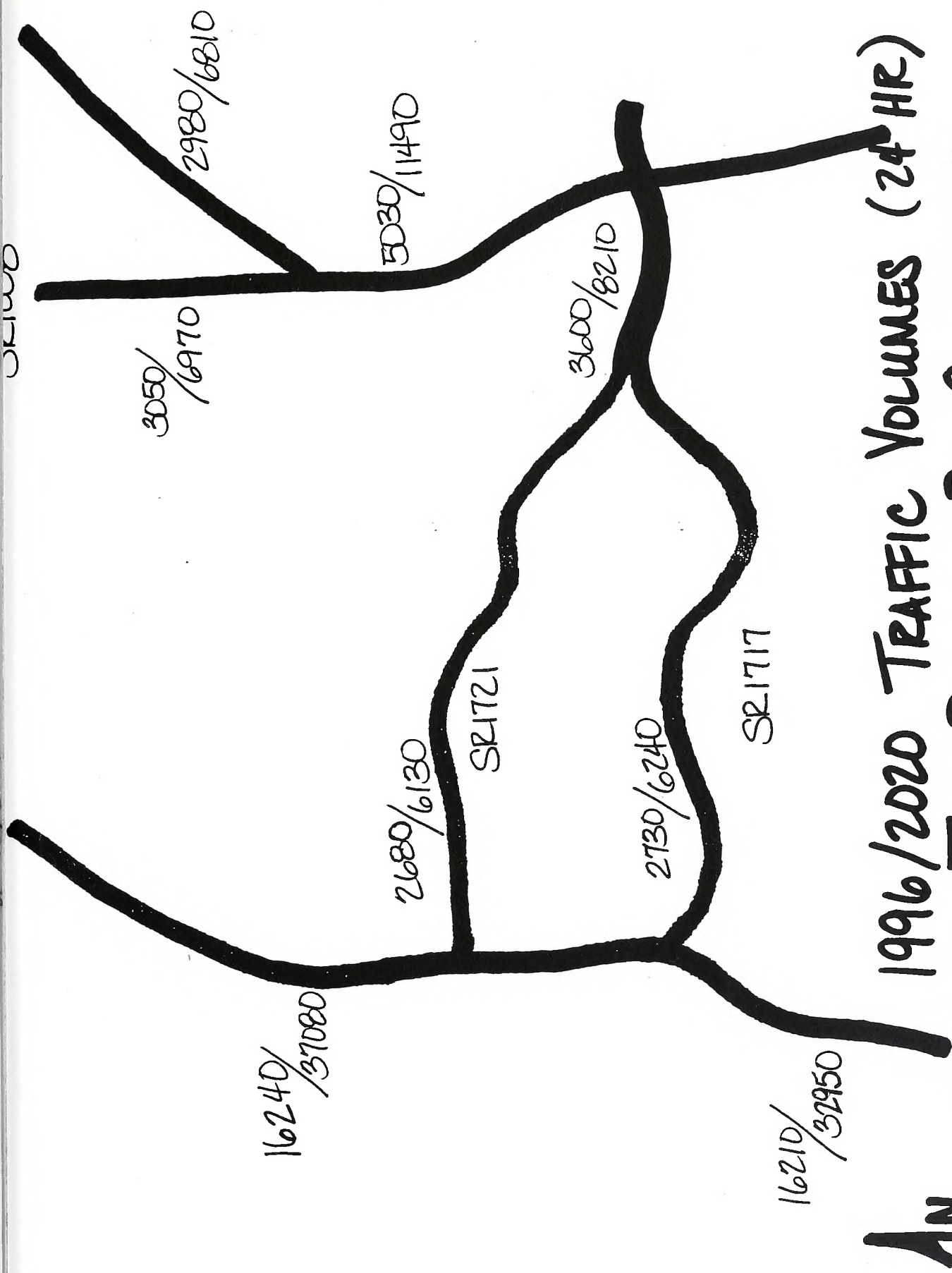
determine traffic patterns. The third diagram shows existing and projected traffic volumes if the proposed connector were constructed today.

At the second public meeting, handouts were provided to the Planning Board and citizens. The following table and figure depicts the analysis of three different alternates which were also presented. This table provides preliminary information used in quantitatively comparing the impacts to several alternates. **Alternate A** is the recommended alignment. This is the alignment referred to throughout this report. Next, is the do-nothing alternate. This means there would not be a new connector road constructed. The important impact to note with this alternate, projected conditions without a new connector road indicate the need to recommend widening US 15-501 to six lanes. Finally, **Alternate C** is an alignment that was later investigated. It is an acceptable alternate, however, this basically serves the same purpose as the existing section of Jack Bennett Road.

Alternates	Alternate A Thoroughfare Plan (yellow & red)	Alternate B Widen Existing (green)	Alternate C Southern Alignment (orange)
Total Rdwy Cost \$ (millions)	7,893	11,674	8,443
Project Length (mi) (new/widening)	5.98 2.32/3.66	11.71 0/11.71	6.22 4.08/2.14
Relocatees (Res/Bus)	15/1	31/2	16/1
Stream Crossings (new/widening)	3/1	0/3	3/1
National Wetlands Inventory (acres)	0.45	0.10	0.10
Protected Species	no	no	yes
Corps Land	yes	yes	yes

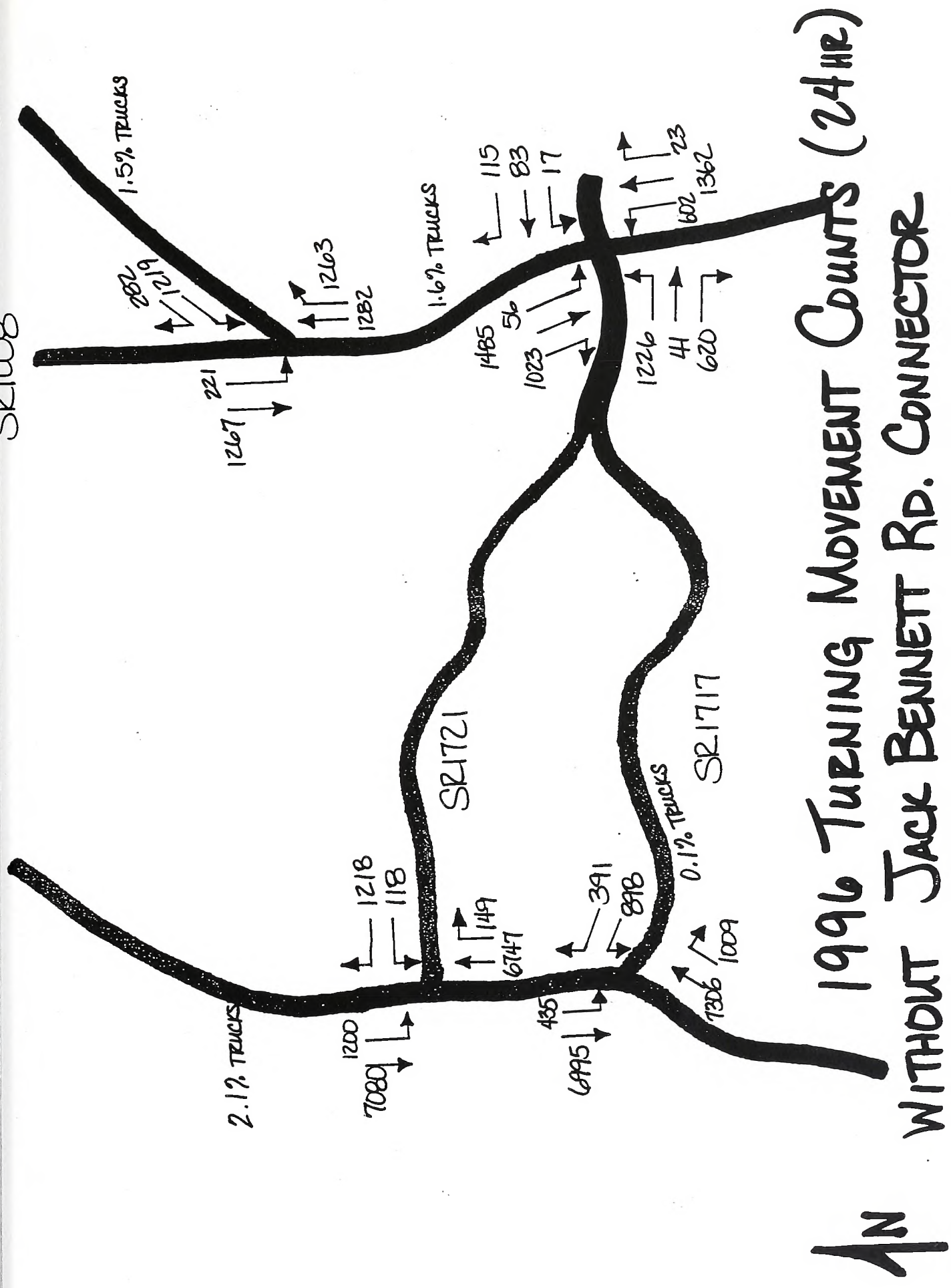
* Information presented in this table is based on preliminary environmental investigations, aerial photography, and field investigations.

021500



1996/2020 TRAFFIC VOLUMES (24 HR)
WITHOUT JACK BENNETT RD. CONNECTOR

SKIN



US 15/501

SR 1726

SR 1008

3050/
6970

4970/
11340

7010/
16000

2630/
6230

1350/
3080

4290/
9800

1200/
2400

1000/
2200

2680/
6130

SR 1721

3890/
8890

4720/
10710

SR 1717

14260/
32560

16210/
32950

1996/2020 TRAFFIC VOLUMES (24 HR)
WITH JACK BENNETT RD. CONNECTOR






257192

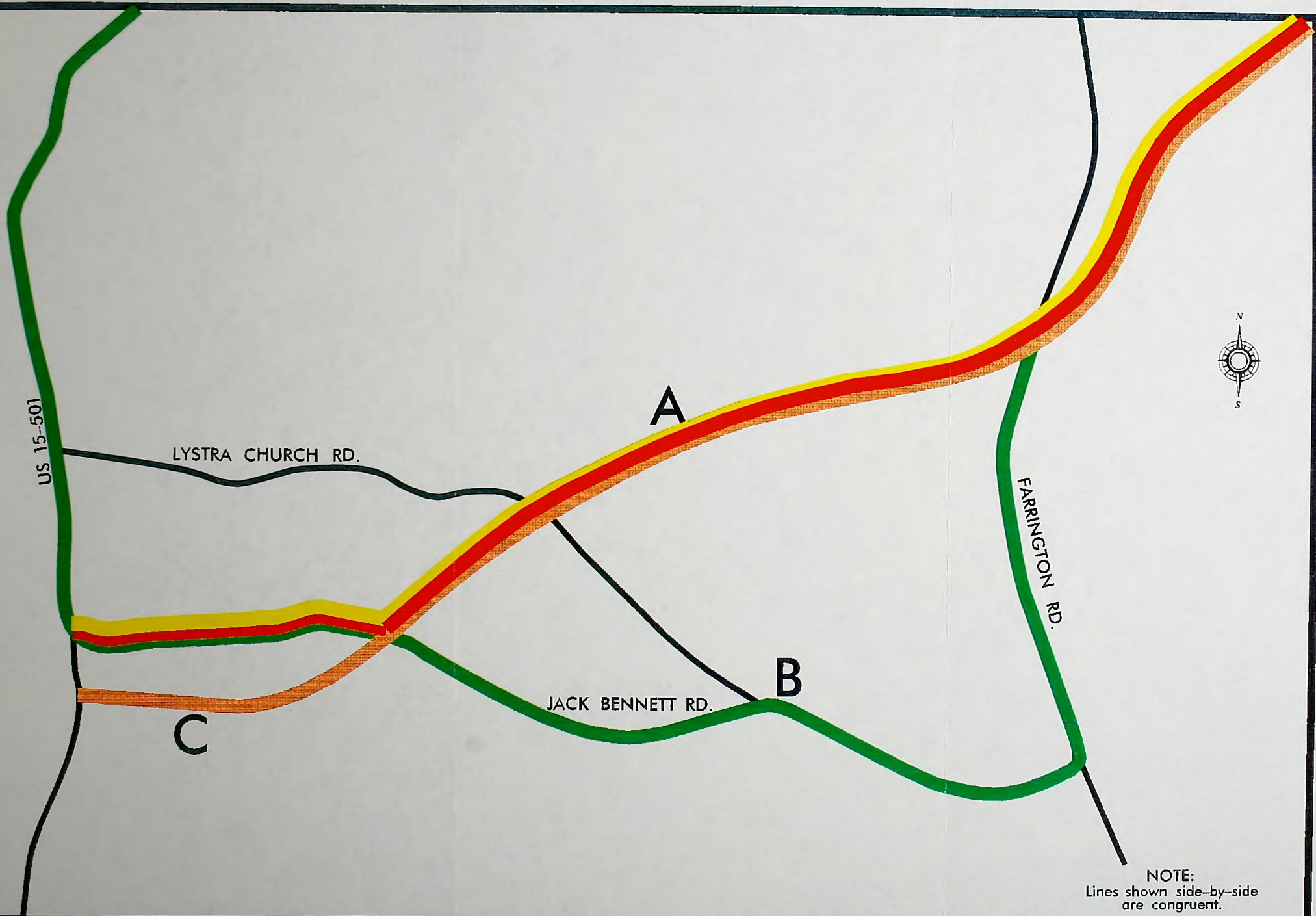
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102/2120

ALTERNATIVES ANALYSIS

LEGEND

ALTERNATE	A	
ALTERNATE	B	
ALTERNATE	C	



NOTE:
Lines shown side-by-side
are congruent.

CHATHAM COUNTY

NORTH CAROLINA

PREPARED BY THE
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
STATEWIDE PLANNING BRANCH
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION

NOT TO SCALE

For illustration only
and not intended to stand alone

APPENDIX D

Public Involvement

Monthly Committee Meetings

Starting in October 1995 and going through to April 1996, subcommittee meetings were held on a monthly basis. The purpose of these meetings was to present information used in updating the Thoroughfare Plan. This allowed local staff, and other concerned citizens, the opportunity for involvement during the decision making phases of developing the Thoroughfare Plan. The subcommittee consisted of the following members:

Mary Hayes-Holmes	Member, Board of Transportation
Susan Strozier	Chairperson, Chatham County Planning Board
Margaret Jordan-Ellis	Chatham County United Chamber of Commerce
Raymond Greenlaw	Chatham County Strategic Plan Development
Keith Megginson	Chatham County Planning Director
Olivier Devaud	Chatham County Economic Development Director

Public Meeting - June 27, 1996

On June 27, 1996 at 7:00 p.m., the first public meeting was held at the Chatham County Agriculture Building in Pittsboro. This meeting was held to receive comments from the public on the proposed plan. Local staff, NCDOT, various Planning Board members, and concerned citizens were in attendance to receive information and ask questions. Concerns were raised pertaining to the proposed Jack Bennett Road Connector. These are summarized as follows:

- amount of wetlands impacted by the proposed facility;
- why tie into Jack Bennett Road and not Lystra Road;
- why construct the connector and not improve all of Jack Bennett Road instead.

Based on these concerns, an alternatives analysis was performed. This presented quantitative information in order for a comparison of various alternates to be made based on several criteria. Information developed from this analysis is presented in **Appendix C**.

In addition, one citizen, Pam Watkins, representing various neighbors in the area of the proposed connector, expressed concerns about the justification of the connector. She was contacted individually, following the meeting, to further discuss information about the proposed road.

Public Meeting - September 3, 1996

On September 3, 1996, the second public meeting for the proposed Chatham County Thoroughfare Plan was held. This was an agenda item on the regularly scheduled Planning Board meeting. A short presentation was made explaining thoroughfare planning, what goes into developing a thoroughfare plan, and alternatives for the proposed northern connector. The remaining time was spent answering questions and addressing concerns from the public. Generally, the questions were about the proposed connector. These questions ranged from the justification for it to the traffic projections for it. Numerous concerns were also expressed from those citizens present in opposition to the connector. There were approximately 100+ citizens present and 30+ spoke at the meeting.

At this meeting, handouts were provided to the Planning Board and citizens. Information on the various alternates that were presented is in **Appendix C**. Letters and articles written in response to the recommendations presented in this report are shown on the following pages.

Keith Meggs

Comments to Chatham County Planning Board
Regarding
Draft Update, Thoroughfare Plan for Chatham County
3 September 1996

I hope that the Planning Board will not to act on this draft in its present form, i.e. a series of four maps. In order to be considered seriously by your Board, these graphic representations should be supported by an acceptable base of data and relevant narrative explanations of how these data were used in producing the "Proposed Thoroughfare Plan for Chatham County".

The supporting information needs to explain such things as:

> Why base information (Figure 7, Average Daily Traffic and Capacities) is not provided for a number of roads for which 2020 traffic volumes and capacities are projected (Figure 8), e.g. SR 1008 (north of US 64) and SR 1700.

> Why no "average daily traffic" data more recent than 1994 are available for inclusion in the base information. It is obvious that traffic volume has increased dramatically in certain areas, e.g. northeast Chatham, during the past two years.

> What specific assumptions concerning sub-area, e.g. township/census tract, population growth and travel patterns were made and applied in projecting dramatic increases in traffic volume on roads such as SR 1532 (+146%) and SR 1726 (+141%)?

> What specific assumptions regarding the effects of major Transportation Improvement Program (TIP) projects (e.g. four-laning US Highway 64 and constructing the Pittsboro by-pass) were made and applied in calculating projected traffic volumes, particularly on roads that feed into or parallel these expanded facilities?

> Apparent wide disparities among capacities of existing roads. For example, considering the current configuration and condition of SR 1700, there is no way that it could carry traffic volume equal to the capacity (11,000 vehicles per day) ascribed to NC 87, NC 751, SR 1726, and SR 1532.

> Inconsistencies in the presentation of data related to roads designated in the "Proposed Thoroughfare Plan", e.g. no current or projected traffic volume or capacities for SR 1731, SR 1742, or SR 1752.

A copy of the current "Thoroughfare Plan for Chatham County" should be provided for comparison with the proposed plan.

Ray Greenlaw
Ray Greenlaw

NORTHEN, BLUE, ROOKS, THIBAUT, ANDERSON & WOODS, L.L.P.

A LIMITED LIABILITY PARTNERSHIP

ATTORNEYS AT LAW

100 EUROPA DRIVE

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September 5, 1996

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JO ANN RAGAZZO WOODS
CAROL J. HOLCOMB
JAMES C. STANFORD
CHERYL Y. CAPRON

Chatham County Planning Board
c/o Keith Megginson
Chatham County Planner
PO Box 54
Pittsboro, N.C. 27312

RE: Thoroughfare Plan

Members of the Chatham County Planning Board:

Thank you for the opportunity to speak at the September 3 Planning Board Meeting. I write to reiterate my request that the Planning Board, if possible, broaden the scope of review of the "Jack Bennett Road" project to consider (a) improvement of Lystra Church Rd. (SR 1721) as a necessary aspect (and expense) of utilizing Jack Bennett Rd. (SR 1717) as a "connector" and (b) study of an alternative route extending Mann's Chapel Road to 54 or Barbee Chapel Road, the destination of the identified Jack Bennett proposal. The attached maps identify a potential route of a Mann's Chapel Extension alternative. As I mentioned during the meeting, Lystra will bear a significant portion of the thoroughfare traffic, and it will require the same improvements as Jack Bennett to provide for the safety of the public.

We have never been made aware of a cost comparison between the Mann's Chapel Extension, which was abandoned by DOT, and the Jack Bennett Connector (with or without improvement to Lystra Church). However, to a lay person the extension of Mann's Chapel appears to have a number of advantages that might justify its serious consideration, regardless of the cost comparison.

1. Avoidance of multiple stop-light intersections. It is difficult to imagine that a Jack Bennett Connector will not require additional stop lights at the following intersections: 15-501-Lystra, 15-501-Jack Bennett and Lystra-Jack Bennett Connector. This will impede N/S traffic on 15-501. A Mann's Chapel Connector utilizes an existing stop light intersection and would not encourage traffic patterns to the south which may encourage commercial development.

2. Mann's Chapel Connector eliminates southern diversion of Mann's Chapel and Orange County traffic. The maps demonstrate the concentration of development on Mann's Chapel, which DOT and county studies expect to increase. A Mann's Chapel connector allows that volume of traffic, which will be increased by Harrison School's location at Mann's Chapel, to cross 15-501 once, at an existing intersection.

3. Mann's Chapel Connector can be utilized for mass transportation. The location of park and ride or car pool lots at or beside Cole Park offers an attractive opportunity to coordinate the thoroughfare plan with regional bus routes. Cole Park is a natural collector of rural vehicle traffic and offers commuters the convenience of a pharmacy and grocery at the "bus stop." A Mann's Chapel Connector could utilize express bus routes from Cole Park to RTP, Chapel Hill or Raleigh to reduce traffic, congestion and pollution, rather than simply inviting more of it, as the Jack Bennett Connector.

4. Mann's Chapel Connector would reduce traffic on 15-501 and the Chapel Hill By-Pass. It is doubtful that the Jack Bennett Connector will reduce traffic on 15-501 between Cole Park and Chapel Hill, or on the Chapel Hill By-Pass. A Mann's Chapel extension would attract rural southern Orange and Mann's Chapel traffic in much the same way the abandoned Laurel Hill Parkway would have. It would be close enough to Chapel Hill to serve the same purposes that the Laurel Hills Parkway was intended to serve.

5. Mann's Chapel Extension offers an opportunity for commercial and light industrial development. A Mann's Chapel extension would focus traffic through an area (15-501-Mann's Chapel) which is already under development pressure and which might be attractive for further commercial and light industrial uses, which might compliment mass transit alternatives. It could be an attractive entranceway to Chatham County for residents or businesses. The Jack Bennett connector corridor would not appear to offer any opportunities for expanded commercial-light industrial use, apart from the already planned Governor's Village.

6. Mann's Chapel Extension diverts thoroughfare traffic from areas of recreation and school traffic. In 1992, when the area federal D.O.T. advisory board was planning a Jack Bennett connector, Chatham County School superintendent Perry Harrison pleaded with that board not to route the road by N. Chatham Elementary School on Lystra Church Road. His concerns are even more justified now, when the school has an enrollment of 917+ (largest in the County). The Jack Bennett connector will go within a quarter mile of the school, and the Little League field and facilities which are utilized for county recreation (basketball/soccer). Jack Bennett, Lystra and Farrington Road all experience additional Jordan Lake

and bicycle traffic as well. A Mann's Chapel extension would not divert thoroughfare traffic through existing roads with heavy school and recreation use.

I appreciate your time in considering this letter. I recognize that as a Planning Board you and your staff are much better equipped than I am to evaluate these matters, and I thank you for your work on behalf of the county. However, I am personally convinced that the Jack Bennett connector is not the best way to meet the present and future needs of our county or the region.

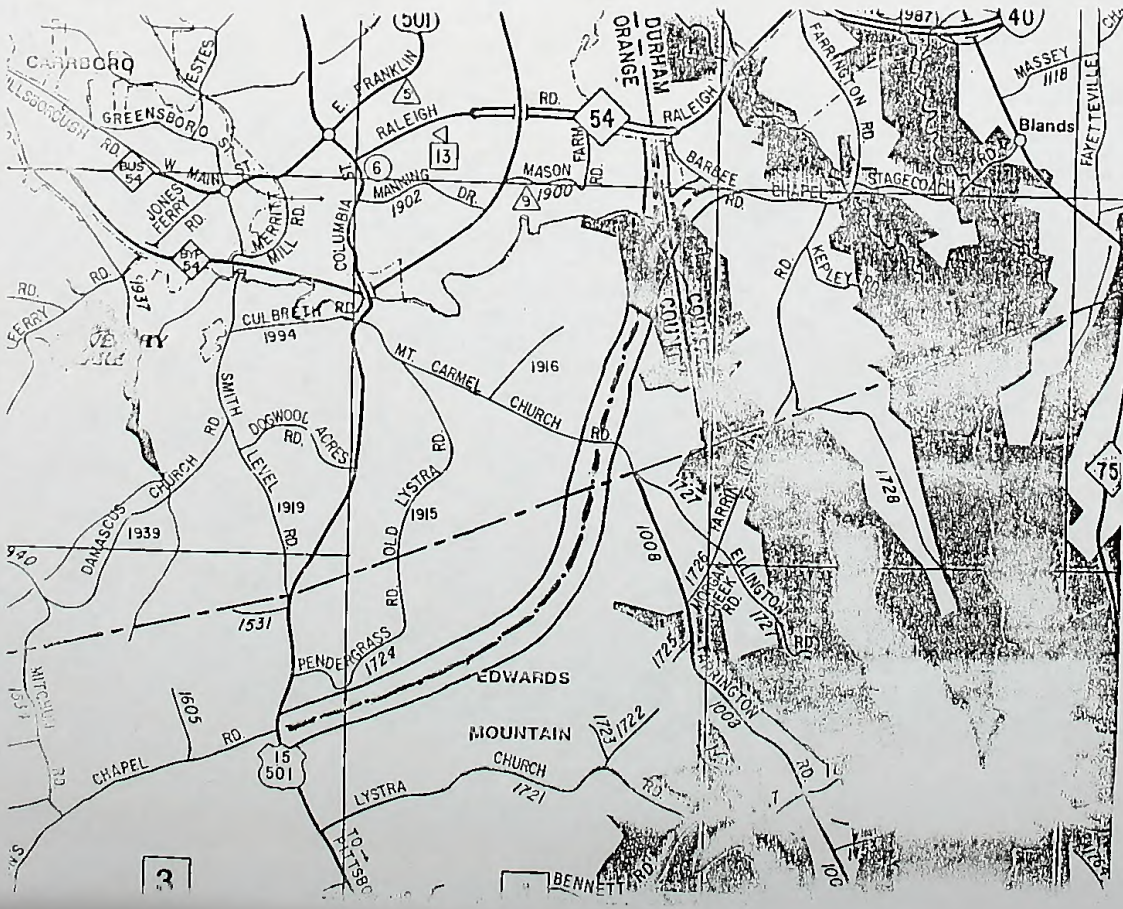
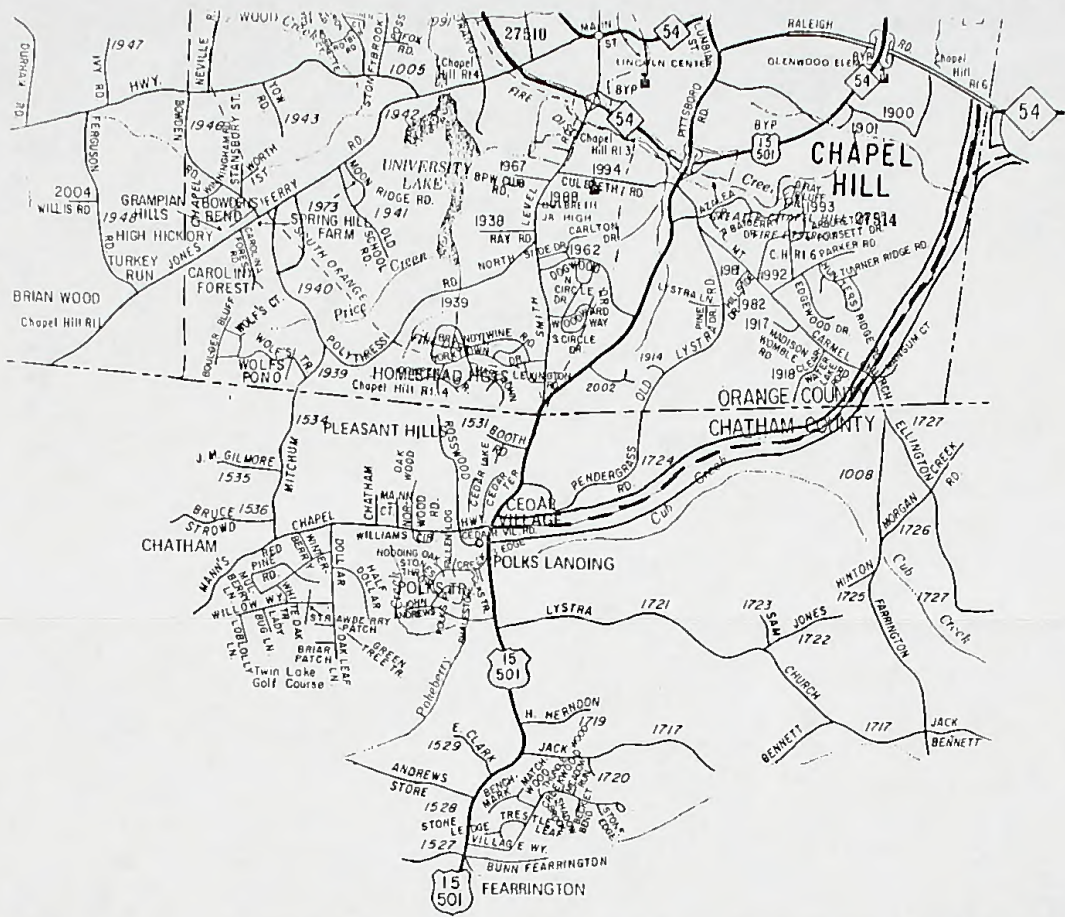
Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Charles T.L. Anderson". The signature is fluid and extends to the right with a long, sweeping tail.

Charles T.L. Anderson

CTLA:ck



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